

'It's Important to Know In Time'

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Air Conditioning & Refrigeration

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Inside Dope

By George F. Taubeneck

No Armistice Day?

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Definition of 'True' Dealer

No Armistice Day?

If any terms other than "unconditional surrender" and death for German leaders had been offered, the war in Europe would have been over three weeks ago, if not much earlier. This leads to speculation that this war may never officially end.

Within another month our armies should be occupying all of Germany. But isolated spot resistance and guerrilla warfare may continue long afterward, until all the Nazi diehards are eliminated.

So, it's possible that there'll be no nationwide spree on an "armistice day." It may never come. But when Berlin is occupied, big-scale warfare over there will be ended. Only mopping up operations should follow. October is the deadline.

More Spending

Will occupation of Germany mean immediate slashing of our colossal expenditures? We doubt it. Not until after elections, anyway. Merchant shipping, for example, is now in adequate supply. Contracts were to have been cancelled on a substantial scale in August, but certain Administration powers "cancelled the cancellations."

Last week's warning should be repeated: political considerations may call for continued vast piling up of surpluses not needed for war. And the Administration has plenty of other plans for further spending. Watch what happens under the guise of Lend-Lease.

How many of these plans actually get into operation will depend on how fast the reconversion transition is made. High employment is the key to all planning.

If one household refrigerator sales manager is right ("we'll be in full production on mechanical refrigerators by December," he has stated privately) the reconversion period may not be so long as some Administration economists think.

Port Bottlenecks

Almost a year ago our High Command believed that Germany could be whipped and occupied within three months after the initial invasion. One thing they did not reckon on then was German cleverness in disabling harbor and port installations, and suicidal Nazi fanaticism in hanging on to all good ports.

Many of the best ports are still in German hands, even though isolated and hopeless. They are defended by picked squadrons of Nazi paranoics, amply provisioned. Those few recaptured ports are diabolically ruined. It is said that even Cherbourg is still not ready for use, so cleverly was it mined and booby-trapped.

But the Nazis were fooled, too, by the cleverness of our new vessels—our shallow-draft landing craft, our "ducks" and other amphibious carriers. Over the Normandy beaches Patton's army was landed in its entirety, and with shrouded secrecy.

And over those beaches, thanks to our astonishing new amphibious vehicles and other engineering feats yet on the censored list, we have moved the supplies which helped win the battles of France and Belgium.

(Continued on Page 10, Column 3)

Locker Meeting Looks to Future

COLUMBUS, Ohio—Emphasis will be on the probable future course of the refrigerated locker storage plant field in the discussions and conferences at the sixth annual meeting of the National Frozen Food Locker Association to be held Sept. 25 through 27 at the Hotel Deshler-Wallick here.

There will still be plenty of room on the program for the down-to-earth discussions of everyday locker plant operations that have always characterized these conventions, but the spotlight will probably be on such advertised sessions as

"The Locker Plant of Tomorrow and Its Possibilities" and

"Home Storage and Zero Units and How They Can Be an Asset to the Locker Plant Industry."

(Concluded on Page 36, Column 1)

R.E.M.A. Closed Meeting At Hot Springs Nov. 15-17

PITTSBURGH—A closed meeting of the Refrigeration Equipment Manufacturers Association has been scheduled for Nov. 15 through 17 at the Homestead, Hot Springs, Va., it has just been announced by the association's headquarters here. The meeting sessions will be open to Rema members only.

Crosley Plans To Make 'Baby Cars' Again

CINCINNATI—The Crosley Corp., peacetime manufacturer of radios, electric refrigerators, and other household equipment, announced Sept. 2 through Powell Crosley, Jr., president, that the company was considering the possibility of additional plant facilities in Cincinnati for postwar production of 150,000 "baby autos."

Prewar Crosley auto production hit a peak of 125 a day and the car sold for \$300.

The postwar car, Mr. Crosley said, would have a larger and more powerful motor but would be lighter in weight than its predecessor. He predicted mileage of 40 miles to the gallon.

Delivery cars and station wagons are planned for the production schedule besides the passenger car output, Mr. Crosley indicated.

The Crosley plant at Richmond, Ind., now engaged in war production would be reconverted to auto production, with the contemplated additional facilities in Cincinnati to be used in connection with the Richmond factory.

Crosley said that the Richmond plant could be sent into full production within approximately six months after war output is completed and the reconversion "go" sign is given.

BULLETIN

SYRACUSE, N. Y.—Frederick W. Smith, who has been Chief of the Special Equipment Branch, General Industrial Equipment Division of the War Production Board for the last 19 months, has tendered his resignation in order to join the executive staff of Carrier Corp. He will report for his new duties Nov. 1.

Under his jurisdiction at WPB were five important industries, including air conditioning and commercial refrigeration. Prior to joining WBP Mr. Smith was with Frigidaire Div. of General Motors Corp. for 16 years, last serving as New England manager of air conditioning and commercial refrigeration sales.

1943 Carrier Advertising Spending Was Largest in Air Conditioning Field

NEW YORK CITY—Carrier Corp., spending \$162,432 in media reaching the general public, led all manufacturers of air conditioning equipment in advertising expenditures in 1943, says *Advertising Age*.

York Corp. was second with an expenditure of \$115,320.

Others in the air conditioning field listed as major advertisers were Airtemp Division of Chrysler Corp., \$79,093; Air Conditioning Division of General Electric Co., \$70,200; Airesearch Division of Garrett Corp., \$95,335; Worthington Pump & Machinery Corp., \$98,152; Air Conditioning Department of Westinghouse Electric & Mfg. Co., \$48,978.

"In anticipation of annual sales of \$300,000,000 or more after the war, or about 500% more than in the best prewar year, air conditioning makers are expanding and strengthening advertising campaigns; new factors are entering this field; and new air conditioners are being readied for market," declared the *Advertising Age* story.

"Among the new factors are Servel, Inc., with a gas-operated unit which cools in summer and heats in winter. Westinghouse will have new equipment to be used in conjunction with a heating unit and Precipitron air cleaner for year-around air conditioning. Among the 'war babies' in the field are Airesearch division of Garrett Corp."

Program Ready For Leagues Meeting In Detroit Sept. 20-22

DETROIT — With the theme "Translating Plans Into Action for More Electrical Jobs after V-Day," the International Association of Electrical Leagues will hold its ninth annual conference at the Book-Cadillac Hotel here Sept. 20, 21, and 22.

Complete program announced for the conference is as follows:

WEDNESDAY, SEPT. 20

Morning

Session chairman: J. Clark Chamberlain, secretary-manager of the San Diego Bureau of Radio & Electrical Appliances.

9:30—"Translating Plans Into Action Now for More Electrical Jobs After V-Day," W. A. Ritt, president, International Association of Electrical Leagues. Welcome to Conferees, A. A. Torgesen, president, Electric Association of Detroit.

10:00—"Organizing and Conducting" (Concluded on Page 4, Column 1)

Motors For Civilians After Germans Quit

WASHINGTON, D. C.—Some improvement in the situation on fractional horsepower motors has been brought about by certain factors, but the motor manufacturers themselves don't see much chance for production on any scale for such civilian items as refrigerators and washers until after the end of the European war.

Production of fractional horsepower motors has caught up with new orders after lagging 30% behind in June. Production now is running at the rate of about \$80 million a month, nearly five times as much as the \$17 million prewar average.

The situation has improved in recent weeks because of airplane production cutbacks—some airplanes using 250 motors; smaller needs for rehabilitating French industry; and freeing of government surpluses.

Little Chance For Commercial Unit Production by Spot Authorization

But Revised Order L-38 Will Speed Return To Civilian Goods: Ratings Now Required For All Units

WASHINGTON, D. C.—There is nothing in the revised Limitation Order L-38 which prevents any individual manufacturer in the commercial refrigeration and air conditioning industry from seeking permission to produce equipment for civilian use under the terms of Priorities Regulation 25, but WPB officials have expressed doubt that very many manufacturers in this field will be granted that opportunity.

"If the individual manufacturer gets clearance from the War Manpower Commission for his labor, and if he makes application and gets the allotment symbol Z-1 from WPB for

Complete text of Limitation Order L-38 as amended Aug. 31 is published on pages 8 and 9 of this issue of *Air Conditioning & Refrigeration News*.

the materials he needs, there is no reason why he can't go ahead and produce items in his normal line," said one WPB official.

It also may be possible for manufacturers to produce various types of commercial refrigerator cabinets and home freezers, stocking them up to wait for the time that condensing units may be produced in sufficient quantities to permit the complete self-contained units to be assembled.

However, the general feeling in WPB seems to be that for the time being both manpower and material shortages will hold up production in all but a few instances.

SPECIAL RESTRICTIONS

The following special restrictions apply to all production authorized under Priorities Regulation 25:

No person may use in the manufacture or assembly of any item on Schedule A of Order L-38, as authorized under Priorities Regulation 25, any new condensing unit, compressor, temperature controls, except:

(1) Condensing units, compressors, or controls obtained from excess stock under Priorities Regulation 13, or the use of which in such production has been authorized in accordance with Direction 4 to Priorities Regulation 1; or

(2) Condensing units, compressors, or controls bought on an order identified by the allotment symbol Z-1 assigned under Priorities Regulation 25, and supplied by a manufacturer, either directly, or through a dealer, jobber, or manufacturer's distribution outlet. A dealer, jobber, or outlet must not deliver, to fill such an order, a new condensing unit, compressor, or control from stock or one obtained by use of a rating assigned on Form WPB-547 (PD-1X), but may obtain the condensing unit, compressor, or control only by extending the Z-1 symbol (and AA-5 rating, if any) to his supplier after he has received a specific order bearing such an allotment symbol.

FOUR 'LISTS' ELIMINATED

The revised order eliminates the four "lists" of products that were part of the old order, including the "schedule of permitted uses" made up of items that could be sold without a rating.

Schedule "A" gives production quotas for each type of equipment covered by the order. Those types which may not be made at the present time have been assigned a "zero"

quota, which, when materials and parts become more plentiful, may be changed to permit production of the particular items involved.

It is now necessary to apply a AA-5 rating for any new commercial refrigeration and air conditioning system or part. Applications will be approved only if they conform to the pattern of essential uses given under list "C" of the old order.

The "automatic" MRO ratings under CMP 5 or 5A cannot be used to get a new refrigeration or air conditioning system, or add to an existing one, unless it is used to replace a wornout system, of the same size, which has been in the user's possession at least 90 days. These restrictions do not apply to the use of AA-1 blanket MRO ratings assigned by CMP regulation 5, or 5A or any preference rating order, providing the equipment is to be installed and operated in the production area, cafeteria, or restaurant of an industrial plant (excluding offices, recreation rooms, conference rooms, drafting rooms, first aid rooms, change and rest rooms, and dispensaries).

The new "Schedule A—Production Quotas For Classes of Systems and Parts," provides for two new classes of equipment that can be produced on the basis of 25% of the 1940 dollar volume, or the volume of present rated orders, whichever may be higher. These types of equipment are "self-contained store type air conditioning units, 3 hp. and over in size"; and "blood plasma cabinets, rivet coolers, and industrial low temperature cabinets, except for food freezing or food storage."

No matter on what basis this equipment is produced, it can be sold only on orders rated AA-5 or better.

Use of WPB Forms 2448 and 2449 have been discontinued in the Revised Order L-38 and all applications for ratings are to be made on Forms 1319 and 617 (the latter to be used where permission for construction is required).

Both of these forms are to be filed with the field offices of WPB.

Approval For 2 Firms Only Seen In N.Y.

NEW YORK CITY—Of the 15 applications in this WPB regional area to manufacture civilian goods under the "spot authorization" provided by the Priorities Regulation 25 issued Aug. 15 by WPB, only two stand a chance of being granted, Lewis S. Greenleaf, Jr., regional WPB director, said last week.

Some 1,300 inquiries about the "spot authorization" plan were received at the regional office, but up to the end of August only 15 applications had been filed.

The need to recruit some 85,000 workers for war plants in the New York area stands in the way of much reconversion now in this area, it was emphasized by Joseph B. O'Connor, acting regional director of the War Manpower Commission.

Asked whether WMC, faced with difficulties in recruiting workers for war industries, would deny certifications to plants seeking civilian production allotments if such denials would release workers, Mr. O'Connor said that it would be the agency's policy to deny certifications. Manufacturers' applications, it was pointed out, disclose the number and type of workers that would be released in the event production is not authorized.

Use of Electricity on 4 Million Farms Forecast as War Fails to Stop Trend

Farmer Spends \$350 For Appliances First Year In Which He Has Power

PITTSBURGH—Despite wartime restrictions, the nation's farms are being electrified at a faster rate this year than at any time in the history of rural electrification prior to 1935, G. M. Rohde, manager of rural electrification for the Westinghouse Electric & Mfg. Co., stated at a recent meeting of public utility officials.

Mr. Rohde pointed out that farms with central station electric service have increased from only 100,000 in 1919 to more than 2,600,000 now, and predicted that eventually 4,000,000 of the nation's 6,000,000 farms would have electric service. Hailing this as a trend toward higher nutritional standards after the war, he characterized a farm as a "food factory," and said that "the true definition of an electrified farm is one in which electricity is applied to lower the cost of production."

Discussing the farm as a potential market for the electrical industry, Mr. Rohde cited Department of Agriculture figures showing that during the first year that a farmer has electric service available he spends \$350 for appliances. This figure, multiplied by the 1,500,000 American farms still to be electrified, indicates a potential farm market

amounting to more than half a billion dollars for appliances alone.

"The tremendous kilowatt-hour use that will come from the farm will affect every phase of the electrical business—generating equipment, transformers, meters, motors, lamps, appliances, and other products," he said.

Irving W. Clark, manager of the Better Homes Department of Westinghouse, told the power executives that "rural homes in the postwar period will be like the urban homes of America in the use of electricity to eliminate drudgery. Electricity will save labor and bring a new freedom to the rural household."

In the field of electrical appliances for farm use, food freezing equipment looms as among the most important, L. W. Clifford, sales development manager of the Commercial Refrigeration Department of the Westinghouse Electric Appliance Division, said.

"Frozen food for sale seems to me the best approach to increased farm income that I can think of," he added, pointing out that large-sized frozen food storage cabinets could either be built on the farm or purchased as ready-made units.

"Use of such equipment will enable truck farmers to market their produce at the most opportune time, rather than being forced to 'dump' crops on a glutted market," Mr. Clifford declared. "This means that electricity cannot merely reduce the drudgery of the farmer's lot by by lightening his work; it can be an important factor in conserving the production of food for insuring that the time and land devoted to its production will yield the largest possible benefits in human nutrition."

Eaton, Anderson Head Two Bendix Districts

SOUTH BEND, Ind.—Lynn Eaton has been appointed New York divisional manager and Anders Anderson, district manager with headquarters in Syracuse, N. Y., for Bendix Home Appliances, Inc. here.

Mr. Eaton resigned his post as deputy regional director of the Smaller War Plants Corp. in the New York area to take the Bendix position. He formerly was with the New York City office of the War Production Board.

Mr. Anderson comes to Bendix from Easy Washing Machine Corp., where for more than 20 years he was a district manager and special representative.

War Department Map Making Done In Windowless Building

Complete Air Conditioning Is Found To Be Essential For Exact Printing Processes

WASHINGTON, D. C.—To produce as near perfect military maps as possible—because the smallest inaccuracy might cause artillery to miss its target—the War Department's map makers work in a windowless, air conditioned building near here, turning out 100,000 maps daily, and supervising the production of more than 2,000,000 maps weekly by some 30 other firms.

Three million maps a week are sent overseas to the Army, but that is only half enough for our armed forces, the other three million being produced by foreign map firms.

The reaction of map paper and film to changes in humidity and temperature necessitates close control of air conditions if the maps are to be produced accurately. Too much moisture in the air, for example, will cause the paper to stretch, while a drop in humidity will make the paper shrink.

Maps are usually printed in several colors, usually four or five, sometimes eight, to indicate all the physical features of the area that are needed, and to make map reading easier. Each color usually requires a separate press run, so that if the paper stretches or shrinks due to changes in air conditions, one color printing plate cannot be accurately registered on the previously printed colors.

The air conditioning installation in the map building is also a boon to employees, especially in the stickiness that pervades Washington in summer.

Military maps made in this country for overseas use are "basic" maps, showing the topography of a section—shorelines, rivers, mountains, and man-made features such as cities, canals, roads, with the more detailed maps indicating important or distinguishing features: railroad tunnel, mine, quarry, church, etc.

When these maps arrive overseas the theatre commander brings them up to date, if necessary, adding such features as a newly constructed road, bridge, dock, before the maps are distributed. Copies of such corrected maps are immediately re-

turned to Washington so the originals may be revised.

British and American military map makers cooperate closely in their operations, and have an agreement whereby world-wide military mapping for the present war is divided between the U. S. Chief of Engineers and the geographical section of the General Staff of the War Office in London.

Map making, a tedious job in the past, has been speeded up to meet the requirements of present-day warfare. Through a set-up similar to a factory assembly line, 100 people may work on a single map, in contrast to the old method where one or two people handled the complete job.

This makes map making in general much faster, and is particularly of value when a theatre commander calls for a map in a hurry. In this instance, though, the rush maps may be produced by topographical troops in the area or a base plant.

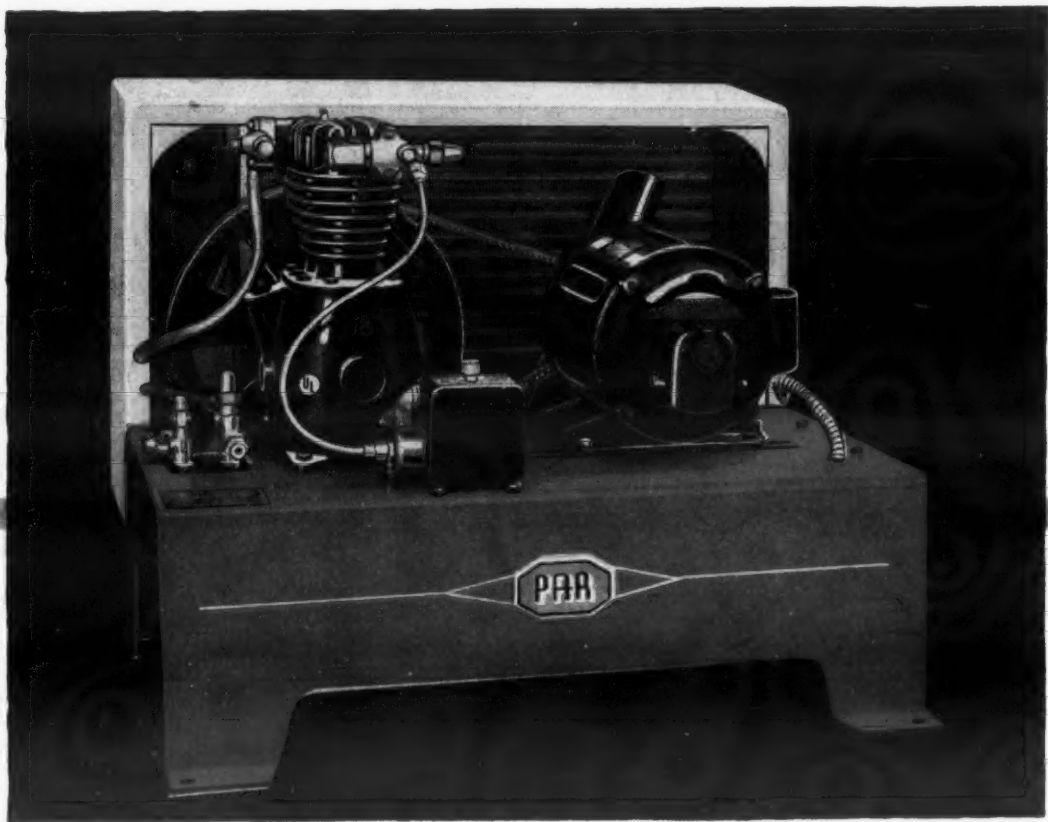
Ted McLaughlin Joins Victor Sales Co.

PHILADELPHIA—T. F. "Ted" McLaughlin, who for five years managed the Harrisburg, Pa. branch of Melchior, Armstrong, Dessau Co., has been appointed sales manager of Victor Sales & Supply Co., refrigeration parts jobber here, announces Alex Holcombe, head of the firm.

Mr. McLaughlin started with M-A-D in the Philadelphia office 11 years ago. Since January, 1942, he has been in the airplane industry, first with Brewster and recently with the Eastern Aircraft Division of General Motors at Trenton, N. J.

Roy S. Durstine Moves Cincinnati Office

CINCINNATI—Roy S. Durstine, Inc., advertising agency, has moved its Cincinnati office to 2108 Carew Tower here.



Par Model HA-15

- Here's just the unit for large soda fountains, large dairy coolers, large reach-in or walk-in coolers.
- Its slow speed, fast pump down makes it ideal for years of economical service.
- 1½ H.P. 2 cylinder air cooled with crank type compressor and bull's-eye sight oil gauge.

• Write for illustrated brochure of details.

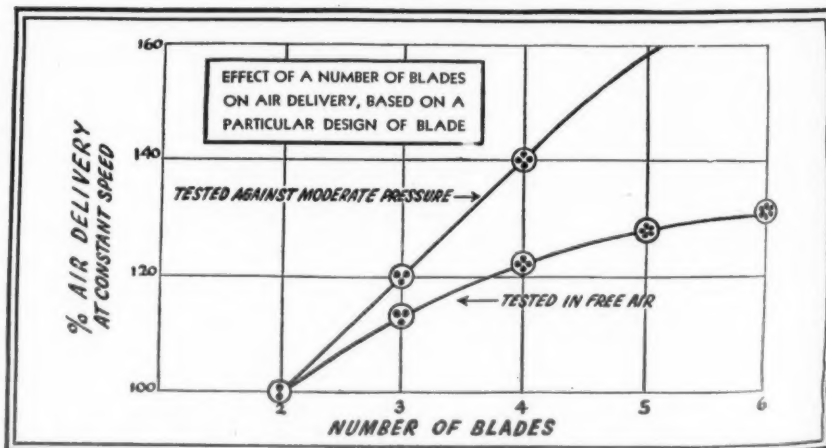
• BY COMPARISON—YOU'LL BUY PAR.

PAR Division

LYNCH
MANUFACTURING
CORPORATION
Defiance, Ohio, U.S.A.

Tips for Designing Air Impelling Units

No. 9 of a series



How many blades should a PROPELLER FAN HAVE?

HOW will the number of blades in a propeller fan affect its air delivery in your product?

Free air tests of a certain group of fans identical in every way except number of blades showed the following results. The air delivery of 3-, 4-, and 6-bladed fans increased respectively 13%, 22% and 31% the air delivered by a 2-bladed fan. These proportions vary somewhat according to the design of the fan.

Increasing the number of blades in a propeller fan increases the fan's ability to build up and maintain pressure, and the per-

centage gain in delivery under pressure rises more rapidly than in free air.

Efficiency is practically unchanged by the number of blades, as power requirements vary according to the amount of air delivered.

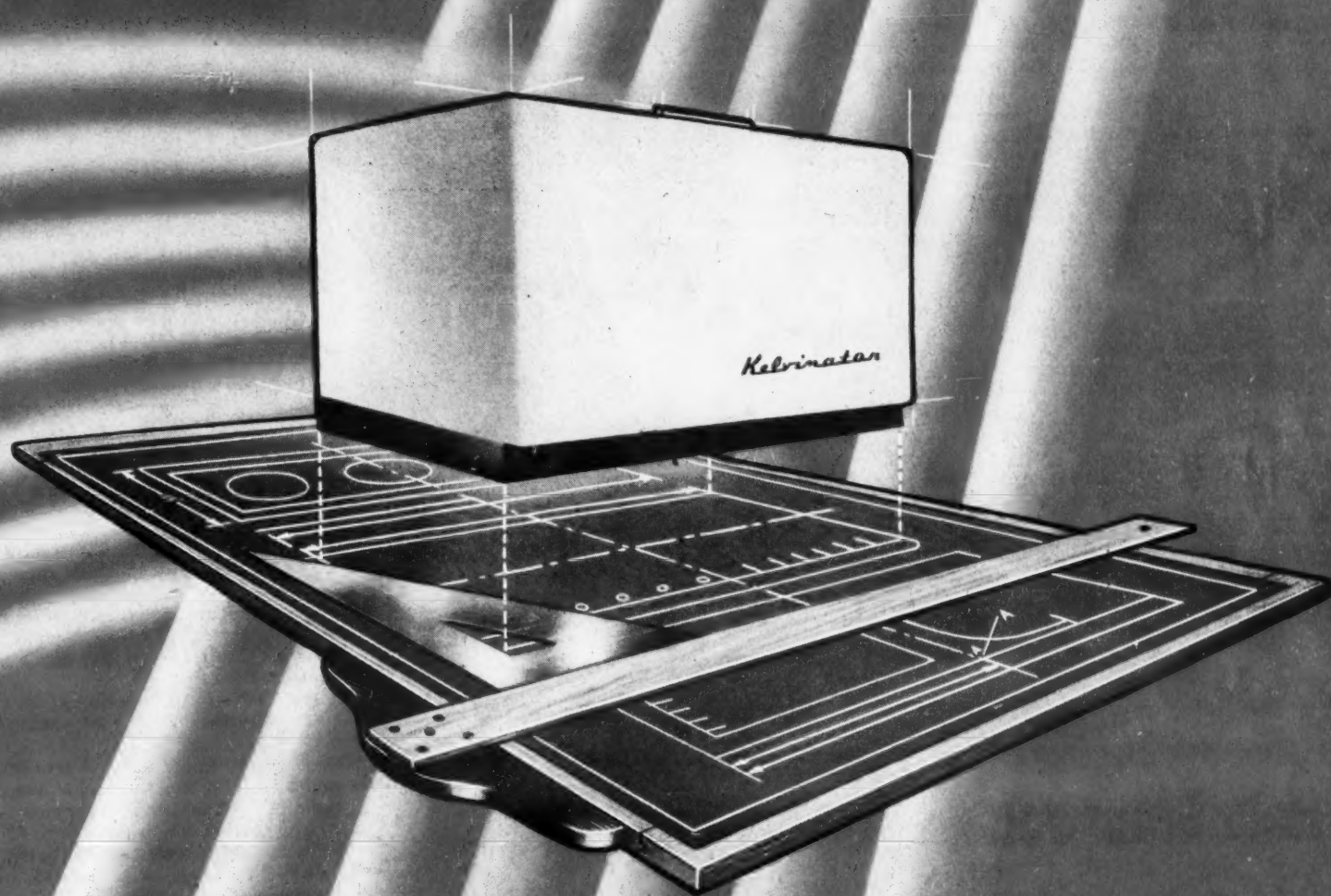
Quietness of operation is little affected by the number of blades when speed is constant.

In deciding upon the correct air impeller for your product, costly changes and delays may be prevented by consulting us during the early design stages. There is no obligation.

THE **TORRINGTON**
MANUFACTURING CO. TORRINGTON, CONN.

Manufacturers of AIRistocrat Quiet Propeller Fan Blades & AIRotor Blower Wheels

THE NEW KELVINATOR HOME FREEZER!



One of the Answers to—WHAT'S AHEAD FOR KELVINATOR RETAILERS

Of all the appliance retailers in America who are looking ahead to the tremendous volume of sales and profits in the Home Freezer market after the war, none is in a more fortunate position than the Kelvinator retailer.

Consider, for example, just three of the many assets which Kelvinator retailers will have in this great new market:

FIRST—a Home Freezer built by a company with more than 30 years of experience in the precision building of low temperature refrigeration units.

Kelvinator is the oldest manufacturer of cabinets designed specifically for the storage of ice cream and food products at low temperatures.

SECOND—a Home Freezer whose refrigeration power unit—the famed Kelvinator Polarsphere—has a proven record of trouble-free operation unmatched by any in the industry.

It is a record established in ice cream cabinets, beverage coolers, household refrigeration and commercial refrigerating units... first requisites of which are day-in, day-out uninterrupted performance.

THIRD—a name which has been synonymous with finest of dependable refrigeration in American homes for three decades.

It is a name which will produce immediate public acceptance for this great new Kelvinator product.

No other retailer will enter the postwar Home Freezer market with as much in his favor as the Kelvinator Retailer.

All of which is another reason why we say... the Kelvinator Retailer—with Kelvinator's great postwar line of Kelvinator Refrigerators, Electric Ranges, Home Freezers and Electric Water Heaters—will hold the most valuable postwar franchise in the appliance industry!

Look Ahead With



KELVINATOR



AWARDED TO NASH-KELVINATOR CORPORATION, PROPRIETOR DIVISION

DIVISION OF NASH-KELVINATOR CORPORATION
Kenosha • Milwaukee • DETROIT • Grand Rapids • Lansing

Broad Program Announced for Conference Of Electrical Leagues in Detroit

(Concluded from Page 1, Column 3) ing a Home Planners' Institute," V. W. Hartley, managing director, Pacific Coast Electrical Association, Inc. of Los Angeles.

10:45—"New Sales Appeal in the Adequate Wiring Program," J. S. Bartlett, chairman, N.A.W.B. plan committee.

11:30—"Expanding the Builder's Market with the Plus-Value of Complete Electrified Homes," W. J. Guinan, executive director, Builders Association of Metropolitan Detroit.

12:30—Luncheon meeting. "Indoor Climate Institute—A New Service Organization for Industry Promotion," T. A. Crawford, general sales manager, Timken Silent Automatic Division, Detroit.

Afternoon

Session chairman: H. P. Wilson, secretary-manager, Electrical Institute of the Tri-Cities, Rock Island, Ill.

2:00—"Establishing a Local Potential for Postwar Appliance Sales," W. F. Switzer, manager, market research and organization dept., Frigidaire Division.

3:00—"Purposes and Program of the National Electrical Retailers Association," M. E. Rodger, customer service and sales manager, Middle West Service Co., Chicago.

4:00—"A New Approach to Rural and Residential Customers Through Consumer Interests," A. H. Kessler, Minneapolis.

5:00—Adjournment.

6:00—Reception and sociability hour.

THURSDAY, SEPT. 21

Morning

Session chairman: Colin G. Odell of Detroit.

9:30—"The Future of Lighting (a) In the Commercial Market, (b) In the Industrial Market," J. L. Kilpatrick, illuminating engineering department, Westinghouse Electric & Mfg. Co., Bloomfield, N. J.

11:00—"The Electrical Dealer's Place in the Complete House Program," Richard M. Jones, western manager, "Architectural Forum."

12:30—Luncheon meeting. "Let's Electrify the American Way of Life," M. E. Skinner, vice president, Buffalo, Niagara & Eastern Corp.

Afternoon

Session chairman: W. O. Zervas, Indianapolis.

2:00—"Opportunities for Electrical Modernizing and Equipping (a) In the Commercial Market," W. T. Stuart, editor, "Electrical Contracting," New York City.

3:00—"Opportunities for Electrical Modernizing and Equipping (b) In the Industrial Market," B. J. Martin, editor, "Electrified Industry," Chicago.

4:00—"Electronics in the Industrial and Other Fields," D. P. Caverly, commercial engineer, Sylva Electric Products, Danvers, Mass.

5:15—Adjournment.

6:00—Sociability hour.

FRIDAY, SEPT. 22

Session chairman: W. A. Ritt, president, I.A.E.L.

9:30—I.A.E.L. business session, including reports of chairmen, elections, and a discussion of league problems.

12:30—Adjournment for luncheon.

2:00—Continuation of discussion of league problems.

5:00—Adjournment.

Army to Freeze Chickens For Overseas Hospitals

WASHINGTON, D. C. — Frozen chickens will soon be shipped "ready for the pan" to overseas field hospitals and Air Corps Rest Centers, according to a War Department announcement here last week.

Chickens prepared in this manner will save 30% in weight and an appreciable amount of shipping space, believe procurement officers of the Office of the Quartermaster General. Contracts have already been placed for an initial order, and if reception is as enthusiastic as expected, frozen chicken will be adopted as a regular procurement item, it was said.

William Yoder Appointed Controller of Philco

PHILADELPHIA — William B. Yoder has been appointed controller of Philco Corp.

Mr. Yoder was associated with Mathieson, Aitken & Co. of Philadelphia, certified public accountants, from 1929 to 1942.

Rema Directors Meet at Ansul



Ansul Chemical Co., Marinette, Wis., was host Aug. 17 to directors of the Refrigeration Equipment Manufacturers Association, of which F. J. Hood, secretary and treasurer of Ansul Chemical Co., is vice president. The directors met to discuss problems pertaining to the industry and to make plans for the semi-annual meeting Nov. 15-17. The men who guide R.E.M.A. pictured above are, front row (left to right): F. J. Hood, vice president; E. M. Flannery, A. B. Schellenberg, president; R. O. White, C. H. Benson. Back row: R. H. Luscombe, H. F. Spoehrer, J. A. Strachan, treasurer; and R. K. Hanson, executive secretary.

Business Firms Asked To Reduce Paper Use

WASHINGTON, D. C.—An appeal to 25,000 leading business firms of the nation to reduce their printing paper consumption to the minimum has been made by Donald M. Nelson, Chairman of the War Production Board.

His letter to members of the National Association of Manufacturers, United States Chamber of Commerce, Purchasing Agent's Association, and the American Association of Advertising Agencies was written before his departure to China on a special Presidential mission.

In explaining his appeal, Mr. Nelson said:

"Good war news has not eased the shortage of paper and paperboard. On the contrary, new and expanded war fronts have brought increased vital needs for paper. Thousands of additional tons are being consumed in maps, printed orders, ammunition, packaging of supplies and equipment and for scores of other uses.

"The paper shortage continues to be one of the most critical situa-

tions confronting the War Production Board. It is of direct importance to every business in America. No effort can be spared to make available paper supplies go as far as possible."

Mr. Nelson said that WPB has avoided issuing orders controlling the end uses of printing and business papers and that he believed such orders will not be necessary if the users of paper will make an extra conservation effort now.

The following paper conservation suggestions were made:

Printing should be designed to use the minimum amount of paper that will serve the intended purpose, with especial attention to elaborate brochures, mailing pieces, broadsides, catalogs, folders, calendars, wall displays, counter, shelf and window displays, annual reports, and heavy envelope stiffeners.

Proposed advertising and sales promotional materials should be reviewed to postpone paper purchases and authorizations not needed now.

Distribution details should be studied to eliminate duplication and the dissemination of advertising appeals to people not interested in the message.



Illustration from Inland poster shows an operation in the production of Inland-made Tank Tracks

Inland-made Tank Tracks of both rubber and metal give speed and mobility to tank destroyers and light and medium tanks, whose armored fire power has been an important factor in the Allied Invasions of France and Italy.

Stemming back to June before Pearl Harbor is Inland's experience in applying its rubber know-how to the quantity and quality manufacture of Tank Tracks for America's now famous mobile fire power.

Tank Tracks—one of the many Inland products for Victory—are helping invading Americans blast through desperate Axis defenses on the fighting fronts of the globe.

INLAND MANUFACTURING DIVISION, General Motors Corporation, Dayton, Ohio



INLAND

Manufacturing RUBBER, METAL, PLASTICS



Inland Products for Victory include Carbines, Tank Tracks, Gun Sights, Helmet Liners, Extinguisher Horns, and Rubber, Synthetic Rubber and Metal Parts for Tanks, Aircraft, Submarine Chasers, Torpedo Boats, Artillery Lighters and Landing Craft.

LET'S ALL BACK THE ATTACK WITH WAR BONDS



GEEHEEBEE and TEEZEE!

The public has heard little of the Geeheebie, but the men of the Service at the invasion water-fronts know that it is the Navy's big mobile dry-dock, used particularly after amphibious operations. Rows of oil drums enable the Geeheebie to float on water. With chain pulleys it picks up damaged landing boats or barges and pulls them in to dry land for repairs.

The public knows little of Thawzone (Teezee or TZ to the nick-namers of the trade) but the servicemen of this and other countries at the refrigeration "waterfronts" know that it is the moving dehydrator or "dry-doc" of the industry that pulls many a unit out of a wet situation in to "dryland." TZ—for its efficacy, low cost-of-use and non-dilution of refrigerant—was a proven success years before we went to war.

"A little goes a long way"

THAWZONE

Fully Protected by U. S. Patents
The PIONEER FLUID DEHYDRANT

HIGHSIDE CHEMICALS CO.

195 Verona Ave.
NEWARK 4, N. J.



Which of these 16 selling points are strongest . . . for this prospect?

Frigidaire Research has proved that there is a fundamental relationship between the way a salesman handles the 16 Selling Points listed below and the speed and sureness with which he closes a sale.

Obviously, all these factors are important—but, given a certain type of prospect, which ones are the most important?

Frigidaire Dealers and their salesmen will have the answers to this and hundreds of questions like it when they launch their postwar selling drives, because they will get the answers in practical, usable form—through Frigidaire sales training based *solidly* on Frigidaire Research.

HOW DO YOU VOTE? Look over the following list of 16 Selling Points and check the ones you believe are most effective with the type of prospect pictured above.

(You'll find this little quiz interesting . . . you may find it very illuminating.)

- | | |
|---|---|
| <input type="checkbox"/> Mechanical features | <input type="checkbox"/> Brand name |
| <input type="checkbox"/> Appearance features | <input type="checkbox"/> Reputation of manufacturer |
| <input type="checkbox"/> Convenience features | <input type="checkbox"/> Reputation of dealer |
| <input type="checkbox"/> Service the appliance provides | <input type="checkbox"/> Location of dealer |
| <input type="checkbox"/> Quality of product | <input type="checkbox"/> Local service facilities |
| <input type="checkbox"/> Cost of operation | <input type="checkbox"/> Prospect's past experience |
| <input type="checkbox"/> Price | <input type="checkbox"/> Terms |
| <input type="checkbox"/> Experience of manufacturer | <input type="checkbox"/> Recommendations of others |

IF A QUIZ LIKE THIS provides a few minutes of mental exercise, perhaps it doesn't really matter how correct your answers are.

But when making sales or missing them depends on knowing which selling points are most effective with which prospects, or on knowing which new features will be "musts" in postwar appliances—then it's essential to have *all* the answers and to have them *right*.

That's the kind of thinking that sparks Frigidaire's Customer Research Staff, and the important work it is doing for Frigidaire Dealers.

What size refrigerator is most useful for a farm family?

What do housewives consider the most important advantage of electric cooking? What are the strongest selling arguments for electric ranges?

What is the opinion of typical housewives on table-top ranges vs. "high-oven" types? On table-top vs. standard-height refrigerators?

How many families out of every 100 are planning to buy a: Home freezer? Combination refrigerator and freezer? Conventional refrigerator?

Just how important is user follow-up, and what method produces the most leads for other sales?

How do refrigerator buyers go about choosing the dealer from whom they make their purchase? How can more of these refrigerator prospects be induced to visit the Frigidaire Dealer's store first?

These are only a few of the hundreds of questions on which Frigidaire Dealers will have the answers. Answers to questions of product design. Answers to problems of merchandising and selling. *Answers which are going to mean so much to Frigidaire Dealers as refrigerators, ranges, water heaters, air conditioners, and other major appliances come back on the market.*

There's still another aspect to Frigidaire Research. Through continuing surveys within its own dealer organization, Frigidaire finds the answers to innumerable specific questions—answers which not only help Frigidaire in planning its production, but also provide invaluable information which may be passed along to *all* Frigidaire Dealers, enabling each individual Frigidaire Dealer to benefit from the experience and the thinking of his fellow-dealers!

More than a Half-Million Individual Consumer Research Contacts!

In the past nine years alone, Frigidaire Research has conducted 77 major consumer studies—has queried close to 625,000 persons. This is *besides* the information continually being gathered from Frigidaire Dealers, for other Frigidaire Dealers!

Research like this among consumers and dealers is just one of the things that make the Frigidaire franchise so valuable. Such research has been going on at Frigidaire for years, will continue to have its profound effect on *what* Frigidaire dealers sell their customers—on *how* they sell them—on *how much* they sell them. As a division of General Motors, Frigidaire shares in its great tradition of . . .

"Finding out what people **LIKE**
—and doing **MORE** of it.

"Finding out what they **DON'T LIKE**
—and doing **LESS** of it."

Listen to
GENERAL MOTORS SYMPHONY OF THE AIR
Every Sunday Afternoon, NDC Network

BUY WAR BONDS FOR VICTORY



FRIGIDAIRE
Division of

GENERAL MOTORS

DAYTON 1, OHIO • LEASIDE 12, ONTARIO

Peacetime builders of

ELECTRIC REFRIGERATORS • RANGES • WATER HEATERS
HOME FREEZERS • ICE CREAM CABINETS
COMMERCIAL REFRIGERATION • AIR CONDITIONERS
BEVERAGE, MILK, AND WATER COOLERS

Postwar Planning

More War Veterans Want to Become Appliance Dealers, Says W. H. Loeber

NEW YORK CITY—Increasing interest of war veterans and men still with the Armed Forces in establishing appliance dealerships after the war is noted by W. H. Loeber, newly appointed eastern district manager of the Electric Appliance Division of Westinghouse Electric & Mfg. Co.

Mr. Loeber was formerly sales development manager for the eastern district, which includes all of New England and New York state, as well as parts of New Jersey and Pennsylvania. This territory, according to a recent Westinghouse market survey, is expected to show an 80% increase in appliance sales during the first five postwar years over volume figures for 1940 and 1941.

"An interesting barometer of the future market for electrical appliances is the vast number of requests for Westinghouse dealerships," says Mr. Loeber. "Every day an amazing number of letters, telephone calls, and personal visits are received by us and our distributors.

"Inquiries have come in from men in the services both overseas and at home, from bankers, insurance men, retail clothing merchants, and, of course, numerous requests have come in from experienced retailers, such as, electrical, hardware, department and furniture stores.

"All of them envision a tremendous pent-up demand because of the

barren appliance years since Pearl Harbor. They are receptive to constructive recommendations of Westinghouse and its distributors involving business locations, physical characteristics of store exteriors and interiors, display suggestions and so forth."

He added that the new building market will represent a large portion of the future appliance market in the eastern district, pointing out that a recent consumer survey indicates that a new home is one of the most desired commodities for postwar years.

"This finding, plus the fact that new electrical appliances like ranges, refrigerators, and dishwashers can be included in the overall mortgage and paid off over a long period of years will result in many all-electric homes," Mr. Loeber said.

The new manager has been with Westinghouse since 1925, serving first as an advertising clerk, and from 1928 to 1930 as assistant eastern advertising manager. In 1931, he became eastern sales development manager and in that position served until his present appointment. His office will continue to be at 40 Wall St., New York City.

A graduate of New York University, Mr. Loeber has been actively affiliated with such groups as the Advertising Club of New York.

3 More Distributorships Appointed to Handle Admiral Corp. Line

CHICAGO—Three more distributor appointments have been announced by Ross D. Siragusa, president of Admiral Corp. here. They are Peaslee-Gaulbert Corp., Atlanta, Ga.; Monroe Hardware Co., Monroe, La.; and Kaemper-Barrett, San Francisco.

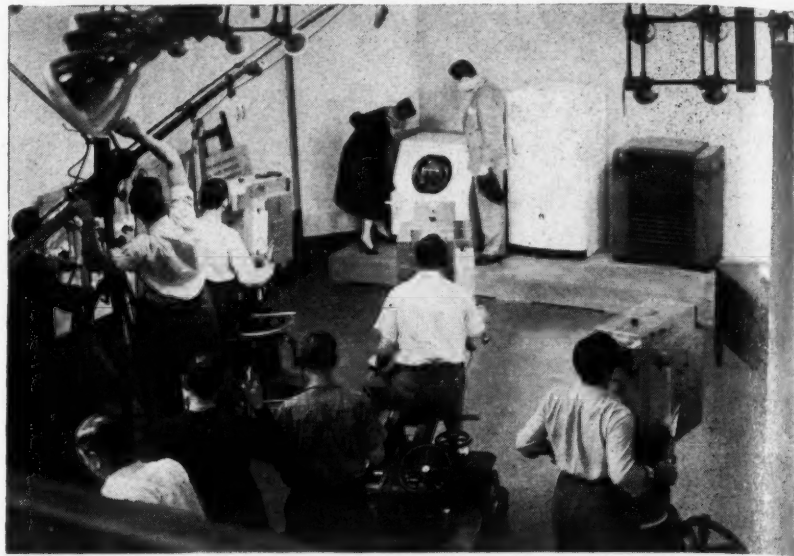
Peaslee-Gaulbert, founded in 1867, operates branches in 11 major cities throughout the south, with headquarters in Atlanta and Jacksonville, Fla.

Before the war the firm distributed Admiral radios and Stewart-Warner refrigerators. William J. McKay will head the appliance department at Jacksonville, and C. W. Helms, vice president of the corporation and general manager at Atlanta, will direct appliance distribution in Atlanta.

W. L. Ethridge, Jr., vice president of Monroe Hardware, will direct the division of this firm handling the Admiral line. This company was established in 1889 as a retail store, but later became a wholesaler. Wholesale appliance distribution was taken on in 1920. Before the war, Monroe Hardware distributed the Westinghouse refrigerator line.

Kaemper-Barrett at 246 S. Van Ness Ave., San Francisco, was established 15 years ago. A prewar distributor of Admiral radios, the firm maintains a branch salesroom in Oakland.

'Seeing is Believing'



NBC television cameras focus for a close-up of the Westinghouse automatic-cycle washing machine, the Laundromat, and the Westinghouse "Dolly Madison" 7-cu. ft. refrigerator during the special television program "Nassau County in War and Peace" presented over Station WBNT. Virginia Gahagan and Bob Hopkins, television stars, examine the appliances they'll be able to buy as a typical young couple after the war because they are saving war wages for specific postwar products under a plan developed by the Franklin Square National Bank of Long Island, N. Y., and adopted by banks throughout the country.



The actors and the television cameras focus on the refrigerator during presentation of the television program promoting saving now for postwar appliance purchases. Lowell Thomas was moderator.

Weatherhead Promotes 3 To Vice Presidency

CLEVELAND—Three executives of the Weatherhead Co. here have been named vice presidents, and a fourth has been appointed assistant to the president, announces A. J. Weatherhead, Jr., president.

H. Church is now vice president in charge of sales; George H. Hufford, vice president in charge of engineering; Robert P. Gibson, vice president in charge of automotive sales; and Morris H. Wright, assistant to the president.

Mr. Church joined Weatherhead in 1936 as sales engineer and later became manager of the aviation sales division. Mr. Hufford came to Weatherhead in 1943 as chief development engineer. He was formerly chief engineer of Thomson Products Detroit Division, and executive engineer of Houdaille-Hershey Corp.'s Buffalo Division.

Mr. Gibson, a former banker, has been with Weatherhead for 15 years. At the time of his promotion, he was manager of the industrial sales division.

Mr. Wright came to Weatherhead from Acme Steel & Malleable Co., where he was assistant manager.

Your BREAKER STRIPS CAN BE Decorative

FORMICA breaker strips in color—cool, delicate tints and patterns—can add an important selling touch to the appearance of your refrigerator.

They can provide, in fact, just the sort of selling point that counts most with women.

These more attractive breaker strips sacrifice nothing in sturdiness and durability. They will not spot with condensed moisture, or with cleaning solutions, and they will stand up to the constant cleaning of the most rigorous housekeeper.

This is a simply handled improvement which will require no new tooling, no preliminary preparations.

"The Formica Story" is a moving picture in color which shows the qualities of Formica, how it is made and how it is used. Available for meetings of engineers and business groups.

THE FORMICA INSULATION COMPANY

4610 SPRING GROVE AVENUE
CINCINNATI 32, OHIO



DON'T LET Postwar Business slip through your fingers

BE READY TO TAKE CARE OF ALL COMMERCIAL REFRIGERATION NEEDS just as soon as the green light says "go".

The complete Sherer line—freezers and display refrigerators of all kinds will be available when restrictions are removed. Reach-in refrigerators and walk-in cooling rooms, as well as the Sherer distribution franchise, are available now! Write or wire today.

SHERER-GILLET COMPANY
MARSHALL, MICHIGAN

Six C-2 Freighters Will Be Made Into Frozen Food Ships

OAKLAND, Calif.—Success of the first six new C-2 type freighters converted early in 1943 to refrigerated "reefers" for transporting frozen meat to Allied forces abroad has resulted in a Maritime Commission order similarly to convert an additional six vessels, according to York Corp., which will do the work.

The freighters, built at the Moore Drydock Co. in Oakland, Calif., were designed by the Maritime Commission for permanent use after the war. Each has a displacement of nearly 14,000 tons and a gross cargo volume of 502,000 cubic feet. The cargo space is divided into two separately insulated cargo spaces which together have 14 compartments, each compartment being maintained at a temperature of 15°. Efficiency of the general design makes it possible to convert with only minor hull changes.

Centrifugal refrigerating machinery operated directly by its own steam turbines taking steam from the ships' steam boilers will be installed to provide necessary flexibility and to conserve shipping space and weight, York engineers explain. This duplicates the installation in the six freighters originally converted which marked the first time cargo vessels were equipped with centrifugal compressors for cargo refrigeration. Two compressors are installed on each ship, to provide the maximum amount of refrigeration needed, one of which is a spare.

Under the present design of the vessels, only frozen foods cargoes are intended to be carried. If loaded at field temperature, the air cooling surface in the various holds would be inadequate to cool the cargo quickly enough for rapid loading.

Woodward, Wight Crosley Distributor

NEW ORLEANS—Appointment of the Woodward, Wight & Co., Ltd., as distributor of the Crosley Corp. in southern Louisiana, southern Mississippi, southwestern Alabama, and northwestern Florida, has been announced by B. T. Roe, manager of distribution, The Crosley Corp.

I. C. Deckbar, president, has been with the company 30 years; E. H. Barrios, vice president, 20 years; W. L. Peters, vice president, 45 years; R. U. Lea, vice president, 19 years; M. F. Hilbert, secretary, 31 years.

The main building consists of a warehouse and offices and is located at 451 Howard Ave., New Orleans. It is a modern, fire-proofed, brick and concrete, four story building. The company also operates four other warehouses, comprising 12 acres of floor space, all of which are in New Orleans.

The establishment is almost entirely owned by its employees, and can boast a sales volume totaling \$8,000,000 in 1943.

In addition to its numerous products, Woodward, Wight & Co., Ltd. will handle a complete line of Crosley products when available. In the meantime, the firm will handle a full line of Crosley parts, and, in addition, will have well-qualified servicemen to provide efficient servicing and repairing.

CORDLEY
THE BATTLE PROVEN
Electric
WATER COOLERS

THE PROVING GROUNDS OF WAR offer dramatic confirmation of the ability of Cordley Electric Water Coolers to withstand hard knocks. Supplied since 1942 and to the Maritime Commission. These same Battle-Proven Coolers are now available for essential uses on land. Write for facts.



CORDLEY & HAYES
452 Fourth Ave., New York 16
Manufacturers of Water Coolers For 55 Years

Civilians To Get Most of Record Half-Billion lb. Frozen Food Pack

Farmers Give Frozen Food Industry 'Eager Support'

OMAHA, Neb.—The quick-frozen food industry will pack more than half a billion pounds this year—setting a new world's record and topping the 1943 output by about 15%, Edwin T. Gibson, director and former president of the National Association of Frozen Foods Packers, declared here last week.

About 85% of this record pack will become available for U. S. civilian consumption. Last year the civilian allocation was only 60%, according to Mr. Gibson, a vice president of General Foods Corp., who was in Omaha on a midwest inspection tour of Birds Eye quick-freezing operations.

"Last year, four out of every 10 packages of quick-frozen foods went to our armed forces, largely in camps

on this side. The remaining 60% went to civilians.

"This year, as our victorious forces advance on foreign fronts, where refrigerated storage is not available, about 85% of these farm-fresh foods probably will be released for the menus of American housewives busy with wartime duties. About 75 varieties of quick-frozen foods—meats, poultry, fruits, seafoods, and vegetables—are being marketed."

Mr. Gibson said that in the West and Midwest, where more than half of the quick-frozen foods are now produced, farmers are giving the new industry eager support. Leaders in the industry are aiding farmers in the scientific improvement of seeds, crops, and agricultural methods.

"The Western pack of frozen vege-

tables last year increased about 76%, with a total of more than 105 million pounds, and there also was a slight increase in the Midwest, where the production of cut corn rose from about 3 million to nearly 8½ million pounds," he reported.

"At the same time, the commercial pack of frozen fruits in the West went up from about 96 million pounds in 1942 to more than 114 million pounds last year. The only decline in major fruit items was frozen strawberries."

Mr. Gibson was asked about his industry's postwar future.

"Well," he said, "we quick-freezing oldtimers never have had time to let our optimism thaw out. We have faith in America's vitality. Despite all complications, the future looks good for any industry—provided it's dedicated to the nation's welfare."

"Quick freezing should expand greatly after the war. It will help make balanced diets available for more millions of Americans in homes of average income, bringing the essential foods as well as tropical delicacies to a mass market of over 30 million families."

Schaefer Asst. Head of New Westinghouse Radio

PITTSBURGH — Appointment of Harold W. Schaefer as assistant manager of the newly formed Radio Receiver Division of the Westinghouse Electric & Mfg. Co. has been announced by Walter Evans, vice president.

"Mr. Schaefer will be in charge of the Division's engineering and production activities, under Harold B. Donley, manager of the Division," Mr. Evans said. "He brings to his new post a background of more than 18 years of radio and other household equipment engineering and production management experience."

As soon as war conditions permit, the new Westinghouse manufacturing division will build and sell a complete line of home radio receivers, including standard receiving sets and frequency modulation, with and without phonograph combinations, and home television equipment. Engineering and development work is already under way on these new models.

DESIGNERS! ENGINEERS! REFRIGERATION SERVICE MEN!

Specify

DU PONT

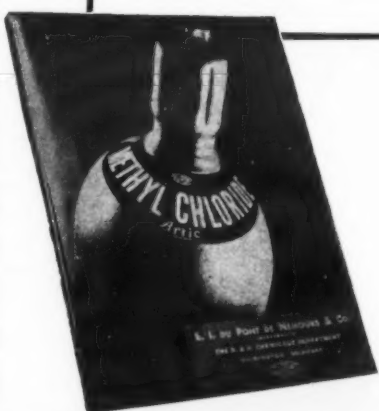
METHYL CHLORIDE

99.5% pure

NOW AVAILABLE FOR YOUR REFRIGERATION WORK!

DU PONT METHYL CHLORIDE— SPECIFICATIONS

Purity 99.5% Methyl Chloride
Moisture 0.008% by wgt. max.
Acid (as HCl) 0.001% by wgt. max.
Residue on Evaporation 0.01% by wgt. max.
Boiling Range (760mm) -24.6° to -23.6°C.
Color water white, clear



This free book is yours for the asking! Du Pont's 92-page Manual on Methyl Chloride is filled from cover to cover with practical, helpful data for every air conditioning and refrigeration designer, engineer and service man. Write for your copy today! E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.

HIGH-PURITY Du Pont Methyl Chloride is a dependable product, designed to meet your exacting requirements. May be used as an original charge, for recharging, or as a completely satisfactory replacement for refrigerants that are scarce or not available.

ORDER WHAT YOU NEED, but don't stock up unnecessarily. You can get Du Pont Methyl Chloride when you need it—quickly—from stocks in principal cities.

WE KNOW YOU'LL COOPERATE by returning empty cylinders promptly. For that's how you can help assure rapid deliveries to yourself and others.

PUSH THE PEACE WITH WAR BONDS!

DU PONT ELECTROCHEMICALS



BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Text of Order L-38 As Amended Aug. 31

Editor's Note: The following is the complete text of Limitation Order L-38, Commercial Refrigeration and Air Conditioning Equipment, as amended Aug. 31. The parts in the boldface type are the new or revised sections of the order.

Part 1226—General Industrial Equipment [Limitation Order L-38 as Amended Aug. 31, 1944]

Industrial and commercial refrigerating and air conditioning machinery and equipment.

The fulfillment of requirements for the defense of the United States has created a shortage in the supply of steel, copper, and other materials for defense, for private account, and for export; and the following order is deemed necessary and appropriate in the public interest and to promote the national defense:

§ 1226.6 *Limitation Order L-38—(a) Purpose and scope.* The general purpose of this order is to assure that the limited quantities of refrigeration and air conditioning equipment being produced will be delivered to those persons who need it most; to explain the methods for applying for priority help when a buyer needs such equipment; and to limit manufacture to the extent necessary to avoid interference with war programs. An ultimate consumer may apply a MRC rating to get a new system or new parts to replace his equipment which

has worn out, but in most cases he must apply to the War Production Board to get additional equipment. Dealers and distributors must have orders rated AA-5 or higher to get new systems or parts for inventory. Manufacturers may not produce any of certain kinds of equipment, and have quotas for other kinds. It will be noted that certain types of equipment, such as domestic refrigerators, are not included in this order, as they are covered by other orders of the War Production Board.

Definitions

(b) *Definitions.* For the purpose of this order:

(1) "System" means any refrigerating or air conditioning system, consisting of an assembly or combination of machinery, equipment, or other apparatus designed primarily to lower temperature or remove water vapor, directly or indirectly, by mechanical, chemical, or physical means. The term does not include a domestic mechanical refrigerator, a domestic ice refrigerator, or heat exchanger equipment, as defined, respectively, in paragraphs (b) (5), (b) (6), and (b) (9) of this order; or coils or low

sides which are incorporated into "food processing machinery" (as defined in Order L-292). The term includes the equipment used in a domestic air conditioning system for reducing the temperature of air, but not the furnace or warm air distribution system. It does not include electric fans (see Order L-123 and Order L-176), nor does it include an ice storage house requiring no refrigeration equipment (see Order L-41, as to when permission to construct is necessary).

(2) "Parts" includes any assemblies of parts, equipment, insulated enclosures and cold storage doors (except insulation materials used therein), accessories, implements or devices designed or intended for incorporation or use in a system or for installation therewith in causing it to perform its functions, except the following materials:

Liquid or gaseous refrigerants
Oil or other lubricants
Cleaning fluids or other solvents
Anti-freeze fluids
Drying agents
Paints, enamels, varnishes, thinners, and seam fillers.
Wax polishes and rust preventives
Soldering and brazing fluxes and welding rods
Non-metallic filters
Belts and belting
Gaskets
Packing
Insulation materials
Small hardware, such as nuts, bolts, washers, screws, and cotter pins.

(3) "Producer" means any person to the extent that he is engaged in the manufacture, fabrication, or assembly of new systems or parts, or industrial type extended surface heating equipment, or industrial type

humidifying equipment. The term does not include any sales or distribution outlet of a producer.

(4) "Deliver" means: (i) to transfer physical possession, title, or ownership; or (ii) to install for use (but not including a temporary installation solely for the purpose of testing the system or part, or the moving of an installed system from one point on the owner's property to another); or (iii) to place in the hands of any carrier or otherwise in transit for transfer of possession to another person; (regardless of whether such transfer, installation, or shipment is for the purpose of sale, trade, loan, lease, consignment, or other type of transaction).

(5) "Domestic mechanical refrigerator" means any refrigerator for household use which operates either by compression or absorption and which has a net capacity of 16 cubic feet or less (National Electrical Manufacturers Association rating), but does not include any low temperature mechanical refrigerator designed for the storage of frozen foods or for the quick freezing of food where the low temperature compartment customarily operates at a temperature of not higher than 15° above zero Fahrenheit and contains 75% or more of the total refrigerating space in the refrigerator.

(6) "Domestic ice refrigerator" means any non-mechanical ice chest or ice box for home use.

(7) "Industrial type extended surface heating equipment" means any apparatus employing a heat transfer element and designed primarily to increase the temperature of gaseous matter, in connection with the operation of any refrigerating or air conditioning system.

(8) "Industrial type humidifying equipment" means any apparatus designed primarily to add water vapor to gaseous matter, in connection with the operation of any industrial or commercial refrigerating or air conditioning system, or for any purpose other than the health or comfort of persons.

(9) "Heat exchanger equipment" means an assembly, bundle or nest of bare or finned tubes installed in a shell or pressure vessel, and designed for the transfer or exchange of heat between two or more fluids (liquids, gases, or vapors), without the use, as a refrigerant, of (i) ammonia, carbon dioxide, methyl chloride, sulphur dioxide, or chlorinated hydrocarbon refrigerants (trichloromono-fluoromethane, monochlorodifluorome-

thane, dichlorodifluoromethane, dichloromono-fluoromethane, trichloro-fluoroethane, and dichlorotetra-fluoroethane), or (ii) brine or water which has been cooled by the use of ice or any of such refrigerants.

(10) "For direct use by the Army, Navy, Maritime Commission or War Shipping Administration" means for direct use by the regular personnel or regular employees of such an agency only (or "for military exchanges or service departments" under Priorities Regulation 17), but regardless of whether delivery is made by the producer or dealer directly to such an agency, or through or to an intermediate dealer or contractor. The term does not mean for use in any privately operated plant or shipyard financed by, or controlled by, any of such agencies, or operated on a cost-plus-fixed-fee basis.

Restrictions on Deliveries

(c) AA-5 or higher ratings required. No person shall deliver or accept delivery of any new system, any new part, any new industrial type extended surface heating equipment, any new industrial type humidifying equipment or any reconditioned system containing a new condensing unit (with or without motor or controls) or containing a new compressor unit, except under an order rated AA-5 or higher. Certain exceptions are made in (f) below. Paragraph (e) explains what form should be used in applying for ratings.

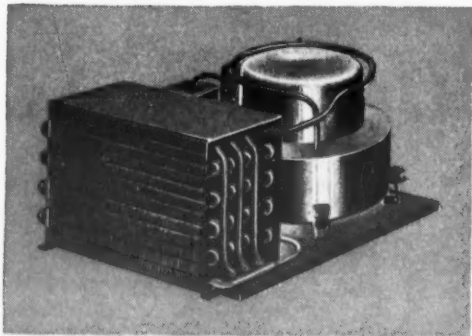
(d) *Restriction on use of blanket MRO ratings; exceptions to this rule.* (1) The blanket MRO ratings (as defined in (E) (2) of Priorities Regulation 3) assigned by CMP Regulations 5 and 5A or any other regulation, order, or certificate may not be used to get any new system, condensing unit (with or without motor or controls), compressor unit, low side, evaporator, cold storage door, insulated enclosure, or any reconditioned system containing a new condensing unit (with or without motor or controls) or containing a new compressor unit, unless it is needed to replace equipment of substantially the same size or capacity which has become worn out or damaged beyond repair while in the purchaser's possession and unless he has had it at least 90 days. In addition, no blanket MRO rating may be used to get any new parts to enlarge the size or capacity of any used or reconditioned system or to improve its design or change its function. If new equipment is needed to replace worn-out or damaged equipment, the new equipment must be of the same type and capacity as the old equipment. (Concluded on Page 9, Column 1)

READY ADAPTABILITY Requires ALL-PURPOSE ENGINEERING



IN AIRCRAFT,

All-Purpose Engineering gives the P-47 Thunderbolt the versatility which makes it one of the deadliest weapons in the skies—with ability to strafe, bomb and fight; high or low.



IN REFRIGERATION,

Universal Cooler Refrigerating Units are likewise All-Purpose Engineered to meet the widest possible range of requirements.

Universal Cooler's new hermetics are designed to help you get a "flying start" in postwar refrigeration. They're "All-Purpose Engineered" to serve refrigeration's many promising new markets—as well as

those already established—with greater all-round efficiency. Compact in structure, advanced in design and precision-built, they are readily adaptable to scores of widely varying applications.

Whatever your refrigeration plans and problems, in whatever market, get the right answers by saying now . . .

Buy Universal Cooler



GREATLY EXPANDED RESEARCH-DESIGN-ENGINEERING FACILITIES
AND FIELD ENGINEERS ARE AT YOUR SERVICE. WRITE TODAY!

IT'S THE EXTRA BONDS YOU BUY THAT COUNT MOST

UNIVERSAL COOLER

UNIVERSAL COOLER CORPORATION • Automatic Refrigeration since 1922

MARION, OHIO • BRANTFORD, ONTARIO

Schedule A—Production Quotas for Classes of Systems and Parts (Schedule A Added Aug. 31, 1944)

The following classes of systems and parts are to be used in figuring the permitted quotas for any calendar year under paragraph (g) (1). If the producer's quota for any class (not marked "0") would be greater under the paragraph (g) (1) (i), he can produce enough of that class needed to fill all unfilled orders on hand rated AA-5 or higher for that class, referred to as "r. o." (rated orders) in the Schedule below. If it would be greater under (g) (1) (ii) for the calendar year, his quota for the class is the specified percentage of the dollar volume of that class made by him in 1940, plus the quantity needed to fill all unfilled orders for direct use by the Army, Navy, Maritime Commission, War Shipping Administration, and Veterans' Administration. (Parts for maintenance and repair are not counted in the quotas.)

The first column below describes each class of systems or parts for which quotas are fixed.

The second column shows the alternative quotas that each producer is allowed.

| System or part: | Quotas |
|--|--------------|
| 1. High side equipment of all types, including (but not limited to) condensing units, compressor units, centrifugal machines, and condensers | 25% or r. o. |
| 2. Low side equipment of all types, including (but not limited to) in coils, gravity and forced air unit coolers, and plate type evaporators | 25% or r. o. |
| 3. Air conditioning units, self-contained, store type, under 3 hp. | 25% or r. o. |
| 4. Air conditioning units, self-contained, store type, 3 hp. and over. | 0. |
| 5. Air conditioning units, self-contained, room coolers | 0. |
| 6. Beer precoolers | 0. |
| 7. Blood plasma cabinets, rivet coolers, and industrial low temperature cabinets, except for food freezing or food storage | 25% or r. o. |
| 8. Bottled beverage equipment | 0. |
| 9. Bulk beverage dispensing equipment | 0. |
| 10. Counter and back-bar refrigerators | 0. |
| 11. Display cases, refrigerated, of all types | 0. |
| 12. Drinking water coolers (non-mechanical) | 0. |
| 13. Drinking water coolers (mechanical), bottle type | 0. |
| 14. Drinking water coolers (mechanical), pressure type, under 5 gals. per hour capacity (based on ambient temperature of 90° F. while reducing water from 80° F. inlet to 50° F. outlet using a waste-water pre-cooler using 60% spill) | 0. |
| 15. Drinking water coolers (mechanical), pressure type, 5 gals. per hour and over capacity (based on ambient temperature of 90° F. while reducing water from 80° F. inlet to 50° F. outlet using a waste-water pre-cooler using 60% spill) | 25% or r. o. |
| 16. Evaporative coolers ("desert coolers") 2,000 c.f.m. and over | 25% or r. o. |
| 17. Evaporative coolers ("desert coolers") less than 2,000 c.f.m. | 0. |
| 18. Farm freezers (for the freezing and storing of food on a farm) | 0. |
| 19. Home freezers and storage cabinets | 0. |
| 20. Ice cream freezers, 20 qt. capacity and less | 0. |
| 21. Ice cream and frozen food dispensing equipment | 0. |
| 22. Ice cube makers, self-contained, cabinet type | 0. |
| 23. Low temperature cabinets, commercial, for food freezing or food storage, other than for ice cream | 0. |
| 24. Reach-in refrigerators of all types | 25% or r. o. |
| 25. Salad coolers (Bain Marie), mechanical | 0. |
| 26. Soda fountain equipment, refrigerated, of all types | 0. |
| 27. Walk-in coolers (not including beer pre-coolers) | 25% or r. o. |
| 28. All other systems and insulated enclosures | 25% or r. o. |

May be built to fill orders for the Army, Navy, Maritime Commission, War Shipping Administration, or Veterans' Administration.

*See (g) (2) of the order.

Note: The name or description of any "class," as listed above, includes all fixtures, items, or parts which are within the meaning of such name or description as customarily used within the trade or industry; and does not include any fixtures, item, or part not within such meaning. This applies in all cases, even though a particular fixture or item in a certain class could be used for the same purpose, or a similar purpose, as an item or fixture in another class.

Examples: A home freezer may not be produced on the theory that it could or may be used as an industrial low temperature cabinet; nor may an industrial low temperature cabinet be produced for delivery as a home freezer. A beer pre-cooler may not be produced on the theory that it could or may be used as a walk-in cooler; nor may a walk-in cooler be produced for delivery as a beer pre-cooler.

Revised L-38 Outlines Procedure On Applications for Production

(Concluded from Page 8, Column 5)

ment is needed for the purposes prohibited under these rules, it should be applied for in accordance with (e) below.

(2) The restrictions in (d) (1) above do not apply to the use of AA-1 blanket MRO ratings assigned by CMP Regulation 5, or 5A or any preference rating order, providing the equipment is to be installed and operated in the production area, cafeteria, or restaurant of an industrial plant (excluding offices, recreation rooms, conference rooms, drafting rooms, first aid rooms, change and rest rooms, and dispensaries).

(e) How to apply for ratings. (1) When an ultimate consumer needs a new system, new parts, new industrial type extended surface heating equipment or humidifying equipment, and may not use his MRO rating to get them, he should apply on Form WPB-617, or other appropriate construction form when permission for construction is required. Form WPB-1319 should be used in all other cases. (These forms are not required for equipment to be delivered for direct use by the Army, Navy, Maritime Commission, or War Shipping Administration.)

(2) Distributors or dealers who need such new equipment for inventory should extend their customers' ratings, and may apply on Form WPB-547 (formerly PD-IX) to get additional inventory from producers, or on Form WPB-541 (formerly PD-IA) if they buy from distributors.

(3) Applications for new systems or parts for export should be made on Form WPB-1310 and such other applicable forms as may be required by FEA regulations, or in accordance with Priorities Regulation 9.

(f) When rated orders not required. A rated order is not necessary under this order for the following transactions (although other orders, such as L-123, may still require a rating for particular parts, such as electric motors):

(1) When a repairman under CMP Regulation 9A or Order P-126 installs any part for a farmer or householder, in repairing a system owned or operated by the latter, if the repairman merely replaces a part of substantially the same size or capacity which the repairman knows or has reason to believe has become worn out or damaged beyond repair while in the purchaser's possession and after he has had it for at least 30 days.

(2) The delivery and receipt of a complete new farm milk cooler, or a new system to be used in a farm milk cooler owned by a farmer, when the purchaser has a purchase certificate from a county farm rationing committee under applicable orders of the War Food Administration. A dealer who has received a specific order from a farmer having a purchase certificate may apply a preference rating of AA-3 to his order, in accordance with Priorities Regulation 3, to get a farm milk cooler or system to fill the farmer's order, or to replace in his inventory the cooler or system used to fill the order. Ratings to afford the dealer an additional inventory, however, must be applied for on WPB-547 or WPB-541 as explained in (e) (3) above.

(3) (i) Any transfer to a trustee or receiver for the benefit of creditors or (ii) the return of an unused system or parts to the person from which purchased (although after such return the equipment remains subject to this order as new equipment).

(4) Deliveries on Z-1 orders. A rating of AA-5 or higher is not necessary for the delivery of any insulated enclosure or parts on an order identified by the allotment symbol Z-1. However, special restrictions on the delivery of condensing units, com-

pressors, and temperature and refrigerant controls are contained in paragraphs (g) (3).

(g) Restrictions on production—(1) New systems, and parts for new systems. During the calendar year starting Jan. 1, 1944, and during each subsequent calendar year, no person shall manufacture or assemble more of any "class" of new systems or parts of new systems (not including parts for maintenance and repair) as shown on Schedule A, than his quota for that class. There is no quota for any person for any item which is followed by the figure "0" in the column headed "Quotas" in the schedule; except that the items marked with an asterisk may be produced to the extent necessary to fill accepted orders for items to be delivered for direct use by the Army, Navy, Maritime Commission, War Shipping Administration, or Veterans' Administration. Where a quota is given in that column for a particular item, each person's quota for that class is to be computed in terms of aggregate dollar volume (producer's sales price at the factory, exclusive of installation charges), and is the greater of the following quantities:

(i) His dollar volume of all unfilled orders on hand rated AA-5 or higher for that class of new system or parts; or

(ii) The percentage, as specified in the "Quotas" column of Schedule A, of the aggregate dollar volume of that class of new systems or parts produced by him during the calendar year 1940, in addition to his current production required to fill all orders, for direct use by the Army, Navy, Maritime Commission, War Shipping Administration, or Veterans' Administration.

Any person may manufacture and assemble parts for maintenance and repair without reference to these quota restrictions and should not include them in the above quotas.

(2) Production under special authorizations. Additional quotas may be authorized under special provisions. For example, see Direction 1 on evaporative coolers.

(3) Production under Priorities Regulation 25. Any person who wishes to produce any items of a "class" for which he has no quota or a limited quota under Schedule A, may apply for permission to do so as explained in Priorities Regulation 25. The following special restrictions apply to all production authorized under Priorities Regulation 25: No person may use in the manufacture or assembly of any item on Schedule A, as authorized under Priorities Regulation 25, any new condensing unit, compressor, temperature controls, except:

(i) Condensing units, compressors, or controls obtained from excess stock under Priorities Regulation 13, or the use of which in such production has been authorized in accordance with Direction 4 to Priorities Regulation 1; or

(ii) Condensing units, compressors or controls bought on an order identified by the allotment symbol Z-1 assigned under Priorities Regulation 25, and supplied by a manufacturer, either directly, or through a dealer, jobber, or manufacturer's distribution outlet. A dealer, jobber, or outlet must deliver, to fill such an order, a new condensing unit, compressor, or control from stock or one obtained by use of a rating assigned on Form WPB-547 (PD-IX), but may obtain the condensing unit, compressor, or control only by extending the Z-1 symbol (and AA-5 rating, if any) to his supplier after he has received a specific order bearing such an allotment symbol.

Miscellaneous Provisions

[NOTE: Paragraph (h) formerly (i) redesignated, former paragraph (h) deleted Aug. 31, 1944.]

(h) Miscellaneous provisions—(1) Applicability of regulations. This order and all transactions affected by it are subject to all applicable regulations of the War Production Board, as amended from time to time, unless this order states otherwise.

(2) Violations. Any person who willfully violates any provision of this order, or who, in connection with this order, willfully conceals a material fact or furnishes false information to any department or agency of the United States is guilty of a crime, and upon conviction may be punished by fine or imprisonment. In addition,

any such person may be prohibited from making or obtaining further deliveries of, or from processing or using, materials under priority control, and may be deprived of priorities assistance.

3. Appeals. Any appeal from the provisions of this order, other than the production restrictions of paragraph (g), shall be made by filing a letter in triplicate with the Field Office of the War Production Board for the district in which is located the plant or branch to which the appeal relates, referring to the particular provisions appealed from stating fully the grounds of the appeal. No appeal should be filed from the restrictions of paragraphs (g) (1) or (g) (2).

(4) Communications. All reports to be filed and other communications concerning this order (except appeals), unless otherwise directed, should be addressed to: War Production Board, General Industrial Equipment Division, Washington 25, D. C., Ref.: L-38.

Issued this 31st day of August, 1944.

War Production Board,
By J. Joseph Whelan,
Recording Secretary.

Note: Lists A, B, C, and D revoked Aug. 31, 1944.



TEAMS UP WITH ALL REFRIGERATORS

ANSUL

ICE-X

TRADE MARK REG. U.S. PAT. OFF.

ICE-X quickly cures emergency freeze ups when ice forms at the expansion valve or capillary tube. Harmless to use. Great for Freon, Carrene, or Methyl Chloride systems... The dependable liquid anti-freeze.

ORDER FROM YOUR JOBBER OR —

EXCLUSIVE NATIONAL DISTRIBUTOR

THE HARRY ALTER CO.


1728 S. MICHIGAN AVE. CHICAGO 16, ILLINOIS

JOBBER: WRITE FOR SPECIAL PROPOSITION!

To manufacturers of

refrigerated locker storage plants

HERE ARE SOME IDEAS THAT MAY BE OF HELP TO YOU



BECAUSE we have been receiving inquiries from manufacturers of refrigerated locker storage plants who are redesigning their present units, we feel that other manufacturers who are not familiar with these Temprite products may welcome the following information about them.

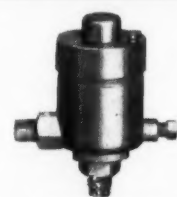
TEMPRITE'S TWO TEMPERATURE VALVE is the ideal valve to use on refrigerated locker storage plants when two or more different temperatures are to be maintained in the one plant. These valves are extremely sensitive and can be adjusted for any desired temperature.

TEMPRITE'S OIL SEPARATORS are invaluable in all low temperature systems because they keep crankcase oil out of the evaporator and evaporator refrigerant, thereby obtaining the maximum efficiency and lowest temperatures under all conditions.

TEMPRITE'S ACCUMULATOR-INTERCHANGER provides a means of using low temperature suction gas to pre-cool incoming liquid refrigerant and also provides a practical method of utilizing the refrigeration effect of raw refrigerant liquid which may leave the evaporator, by storing it until the warm liquid line refrigerant can make use of this available cooling effect.



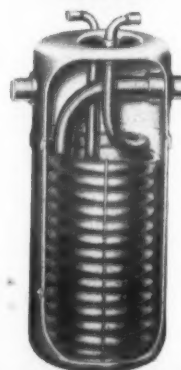
Write our sales department today for complete information about Temprite's engineering service. This service is offered to your designers to assist them in the application of Temprite's standard accessories or the redesign of standard items where they do not meet your requirements.



Temprite's Two Temperature Valve



Temprite's oil Separator



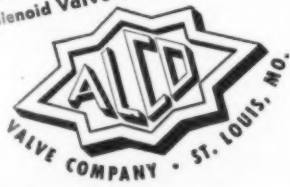
Temprite's accumulator-Interchanger

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous Liquid Cooling Devices

43 PIQUETTE AVENUE DETROIT, MICHIGAN

Designers and Manufacturers of
Thermostatic Expansion Valves;
Pressure Regulating Valves;
Solenoid Valves; Float Valves



SENSATIONAL AMCOIL "COMFORTAIRE"
a new development in air conditioning
LICENSED UNDER
LATENT COOLER PATENTS



REMOVES UP TO 90% OF LATENT HEAT
and the sensible heat is variable

The new AMCOIL COMFORTAIRE CONDITIONER removes up to 90% of the humidity from the air without materially affecting the temperature. Completely automatic wall mounted models, when connected to water cooled condensing units, produce true air-conditioning that heretofore was only possible with expensive reheat systems costing four times as much to operate. COMFORTAIRE creates dry, healthful, comfortable air with no low-temperature shock as in conventional coolers.

USE AS A DEHUMIDIFIER

The AMCOIL COMFORTAIRE is also the answer to a long-felt demand for inexpensive de-humidification equipment for many industrial uses. A few are as follows:

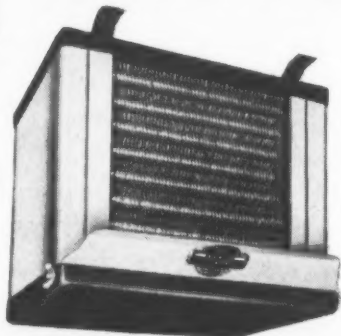
| | | |
|-------------------|----------------|---------------------------|
| PARACHUTE STORAGE | PAPER STORAGE | NYLON & SILK INDUSTRY |
| TEXTILE INDUSTRY | DRAFTING ROOMS | INSTRUMENT ASSEMBLY ROOMS |
| PRINTING PLANTS | CANDY STORAGE | PAINT SPRAY DRYING ROOMS |

Can be used as a liquid and water reclaiming in Aircraft, Ships, and Lifeboats and numerous other industrial Applications.

ADDITIONAL AMCOIL UNITS
meet any refrigeration requirement



AMCOIL FOOD CONDITIONER. A wall mounted unit combining high, controlled humidities up to 85% with temperatures of from 35° to 40° F. Designed for walk-in boxes it automatically preserves foods without dehydration. Can be used effectively to store meats, fruits and vegetables, butter, cheese, eggs, flowers, bakers and confectioners products, to retard dough, etc.



AMCOIL ALSERVICE OPEN FACE COOLING UNIT. Is designed for efficient cooling and serves as a general utility unit in preserving foods and other commodities where a forced draft cooling unit is required. Streamlined design, in attractive grey and black color scheme, it can produce temperatures down to 34° F.



AMCOIL ALSERVICE DOWN DRAFT COOLING UNIT. Is a new idea in refrigeration. It is a straight cooling unit that, should the need for humidity control arise, by the addition of certain parts, the unit is converted into a cooling and high controlled humidity FOOD CONDITIONER with all the advantages of that equipment.

Factory Representative
P. J. BURRILL
800 North Clark Street, Chicago, Illinois



AMERICAN COILS CO.

25-27 LEXINGTON STREET • NEWARK 5, N. J.

Inside Dope

By George F. Taubeneck

(Continued from Page 1, Column 1)

Everybody Loves the Dealer

Cartoonists have had a field day with the new relationship between the retail dealer and his customers. Mr. Dealer is now a privileged character, a member of the creme de la creme social elite as a result of wartime shortages of goods and services. He is wooed, cultivated, flattered, cajoled, and petted nowadays, and these salubrious customer habits are quite likely to hold over for a time after war's end.

As the irreverent jokesmiths and cartoonists see it, the butcher is invited to be a fourth at bridge. The grocer has his lawn mowed by customer's sons. And the refrigerator repair man—most precious of all—gets wedding invitations, entreaties to join cocktail parties, surreptitious gas coupons, and even the demurely fluttered eyelash.

What's happened during this war, from the consumer's standpoint, is a new appreciation of the high value which can attach to a relationship between "Bill" and "Mrs. Smith."

That prewar trend toward chain stores and their impersonal price-shaving has been totally reversed by the obvious advantages which adhere to personal relationships between buyer and seller when it comes to the distribution of scarce goods and services. Buyers are not likely soon to forget it.

Independent dealers used to fret over the price advantages the chain stores enjoyed. That's no longer a problem. Even the chain store managers are trying to adopt the hidden-under-the-counter-for-you methods which now make the independent retailer so sought-after a person.

That goodwill which attends all personal relationships between friendly buyers and sellers is paying off currently, and with dividends. Nearly everyone experiencing it believes that it will last for a long time. The dealer who knows his customers by their first names, and accords them privileged service, has achieved a knighthood which quite possibly may keep him in the chips until he is ready to retire.

His extraordinary position is further enhanced by the wholesale failure of his competitors in the major appliance business. Figures on the demise of appliance dealers vary all over the map; but a conservative calculation would reveal the probability that at least 45% of the prewar dealers as such, are no longer in business at their old stands.

Repair Service Pays Off

Those who have stuck it out have done so through repair service. And if anything is calculated to win goodwill during a period of merchandise unavailability, it's satisfactory service on products still in use.

If John Dealer has been able to keep Mrs. Jones' refrigerator running, Mrs. Smith's range operating, and Mrs. Brown's washer going, he has three boosters who'll trust him and buy from him when he is able to replace their old units with shiny new ones.

His prospect list is not only active, it's enthusiastic! In getting the replacement business, he's in the driver's seat.

True, he can expect that many new competitive dealers will be appointed to replace those fallen by the wayside. Human nature being what it is, and lessons forgotten as easily as they are, quota-pressured distributors' salesmen will probably again measure the results of their efforts by the number of outlets they have been able to appoint.

Furthermore, there is even today a tremendous interest in dealer franchises. Returning servicemen can be expected to enter the field in droves. It's quite likely, however, that these novice dealers will be served by newcomer manufacturers—those war-contract-happy machinists whose plant costs have been written off against war production profits, whose manufacturing techniques have been improved by war orders, and whose equipment and labor forces are already assembled and hungry for work.

Big obstacle in the path of these johnny-come-lately's will be lack of consumer acceptance. Take yourself as a sample consumer. When you buy your new car, will you take a Kaiser Six or a Boeing Eight, or will you buy a Buick, Nash or Chevrolet? There you have your answer in terms of the newcomers.

Many of the returned servicemen, to be sure, will get standard-make franchises. And more power to them. Others will pick up what they can, sell to their buddies for awhile, and then be on their way. The same situation will hold true, and more so, for the opportunists with a few thousand-dollar bills in the safe deposit box, looking for "something like liquor" (or counterfeit gas coupons!) as a retail opportunity for quick profits without too much work.

Personal Service Dealers

These really good "personal service" type of specialty dealers, the sort who have survived the war in good shape because they have serviced their customers' appliances satisfactorily, have every reason to believe that they will continue to enjoy a sales volume out of all proportion with their numbers.

In the days when electric refrigerators were in their heyday as a

specialty appliance, these two to three thousand "true" specialty dealers accounted for as much as 80% of the total volume. Their record is equally impressive on every appliance during the pioneering and rapid-advance stages.

It's entirely likely that they'll be the biggest volume outlets for portable air conditioners, automatic washers, electric ranges, dishwashers, electric blankets, garbage pulverizers, television sets, precipitrons, infra-red lamps, door and window movers, sewing machines, home heaters, and the other new products.

Their competition will consist of the following five types of retailers:

1. Factory outlets, which provide the manufacturer with a quick and easily controlled method of distribution, with no fear of loss of dealers to competitors.

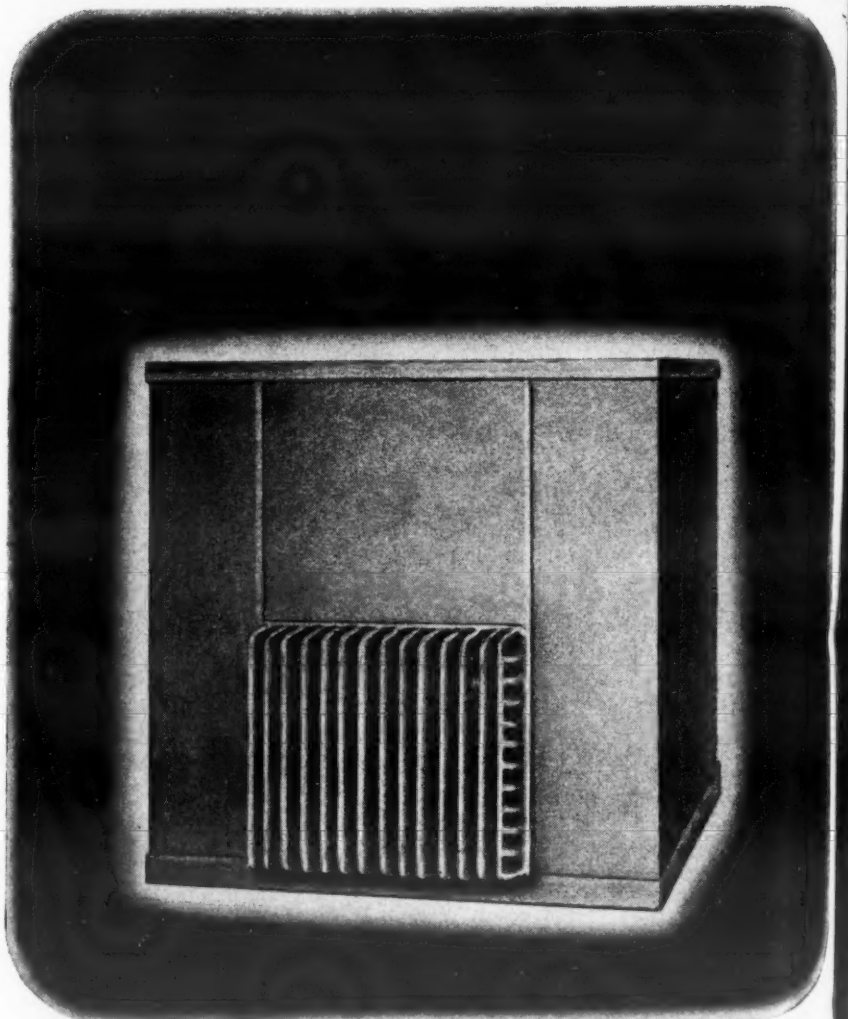
2. Department stores, which offer a big flow of consumer traffic, plenty of retail advertising, and exceptional results on price-cut "sales" of surplus merchandise. They are apt, however, to favor private-brand merchandise.

3. Chain stores, including mail order houses, which may be pointing toward marked expansion in the postwar period. They are aggressive, not confined to any given size community, and combine advantages of floor and specialty selling. They depend on price and traffic flow.

4. Furniture stores, which offer "traffic" plus access to the home. They are apt to be weak in competitive aggressiveness.

5. Public utilities, which are most effective as selling outlets when they are in active cooperation with local

(Concluded on Page 11, Column 1)



TODAY'S PRODUCTION

All America can look forward to products of superior quality when the war effort is no longer the major customer of U. S. industry. For in meeting the exacting specifications of Army, Navy and Maritime Commission, men are designing and building better. Here at USAIRCO, while taking the daily task in stride, we're planning to serve American Retailers better by developing greater values in low-cost comfort cooling. Right now is a good time to get complete information on Kooler-air Evaporative Cooling, and Refrigerated Kooler-air. Data promptly furnished on request.



**UNITED STATES
AIR CONDITIONING CORPORATION**

NORTHWESTERN TERMINAL • MINNEAPOLIS, MINNESOTA

BLOWERS • COILS • COOLING SYSTEMS • EXHAUSTERS • FANS • HEATERS • WASHERS • WHEELS

Inside Dope

By George F. Taubeneck

(Concluded from Page 10, Column 5)
dealers. Securing public acceptance, for instance, has always been a promotional job for which the utilities are well suited.

Those "true" specialty dealers who have survived the war period through building and maintaining adequate service departments—plus their agility and ingenuity in finding various odd items of merchandise to sell—see in the postwar period an unprecedented opportunity to get the retailing of major appliances on a sound and "clean" basis.

The Discount Dans, the hole-in-the-wall gyp joints, the sell-my-cousin boys, and the greeting-card-and-magic-trick type of dealers have all disappeared. Whether or not they will again muddy the waters depends on the perspicacity and long-range canniness of manufacturers, distributors, and their sales managers.

"True" dealers believe they have an opportunity to prove their case for guaranteed territories and solid franchises. They hope that the day of three-dealers-in-a-block are ended. They believe that the mail-order crowd has forever dispelled credence in the theory that "if we can't sign him our competitors will, and then we'll lose sales."

When Sears can rank third in the household refrigerator business with just 500 retail outlets, then somebody has been wrong in the pursuit of the theory that the more dealers you have, the more sales you will get.

Ambitious sales managers in the past precipitated the chaotic conditions we knew in the 1930's by assigning excessive quotas to distributors. Anxious to protect their franchises, eager to earn prestige in contests, distributors' salesmen usually resorted to the franchising and floor-planning of every Tom-Dick-and-Harry who had street entrances or access to friends. Thus the welfare of the "true" dealer was overlooked, to the resultant deterioration of practical market cultivation.

Definition of 'True' Dealer

Your "true" dealer is first of all a factor in his community. He has a reputation, enhanced by the service he has rendered during the war. He is adequately financed, backed by an investment of \$10,000 or more. He has a long list of satisfied customers whom he can cultivate in the pushing of new products and replacements for those in use. The local bankers like, trust, and back him.

He is a good manager. He knows and uses cost accounting. (As a brush-up, he has probably ordered "Record Keeping for Small Stores," price 30 cents, from the Superintendent of Documents, Government Printing Office, Washington, D. C., as recommended by his weekly "Bible," AIR CONDITIONING & REFRIGERATION NEWS.)

He has a good, well recognized, and patronized location; and his fixtures are modern and attractive. He understands window and floor display technique, and sales-conducive store layout.

He has personal selling ability,

which he exercises regularly and frequently—both for sales results and as an example to his staff. He has a knack for selecting and training salesmen. He analyzes his market scientifically, using all pertinent locally available data.

He is a showman, with a flair for stunts, publicity, and taking advantage of news breaks and fads. He knows how to utilize newspaper advertising, lodge, church, association, and other organizational facilities for reaching cohesive groups.

He reads AIR CONDITIONING & REFRIGERATION NEWS, so that he can compare his own merchandising methods with those of other successful dealers all over the country; so that he can keep abreast of the latest government regulations affecting his business and know what they mean; and so that he'll be abreast of what his competitors are offering and doing.

ing. In brief, he keeps well informed, and quickly informed.

He knows that the road to bankruptcy is paved with good intentions, and particularly with the good intentions of nice guys who thought they could become dealers. He realizes that bankruptcies of other dealers hurt him and his future. And he tries to impress his distributor and manufacturer with the adequacy of the job he is doing, so that they won't go hog-wild in the appointing of gaudy competitive dealers who are likely to go busted—meanwhile making it tough for him currently.

He understands the necessity of operating as a member of a happy family with other "true" dealers within the range of the distributorship which serves him. He kicks like a steer when the distributorship makes this "happy family" relationship difficult by appointing too many dealers for mutual "living room."

He refrains from taking on more product lines than he can serve adequately and profitably. He demonstrates ironclad sales resistance when the hotshot salesmen from competitors try to undermine his loyalty to the products he has sold so long and which have formed the

basis for his livelihood and community reputation. He realizes that a "claim jumper" has no better community reputation than a "fly-by-night" in-and-outer.

He does not ask for subsidies in the form of fake advertising allowances, consignments, or credit extensions, knowing full well that such excesses raise the costs of distribution and thus affect his mark-ups adversely.

He expects the manufacturer and his distributor to give him first option on his fair share—based on a percentage of prewar volume—of the early production of major appliances. He expects to get shipments before the newly appointed dealers in his territory receive consideration. He believes he deserves this priority treatment because of the honest job he has done of keeping his manufacturers' products in service during the war period.

He will demand good product performance, with simple service requirements. He will not tolerate guarantee situations which leave him holding the bag. He will insist that equivocating "fine print" be defined and made visible.

He will want nationally known

brand lines, backed up by the authority of sound, established, reliable institutions. He will cling to manufacturing reputations. He may decide to stick to one manufacturer who presents a "full line" of appliances, or he may determine to preserve his trading position by "splitting the ballot." In either event, he will know what he is doing, and make his decision contingent upon his local competitive conditions and his own situation.

He will consider current dealer franchise propositions on a long-term basis. That is, he will want to know where he will be five years from now. That means he will want assurances that the manufacturer will not try to line up more dealers than he needs, that he will be able to give proper aid to those he has, and that he will keep his line of products abreast of the procession.

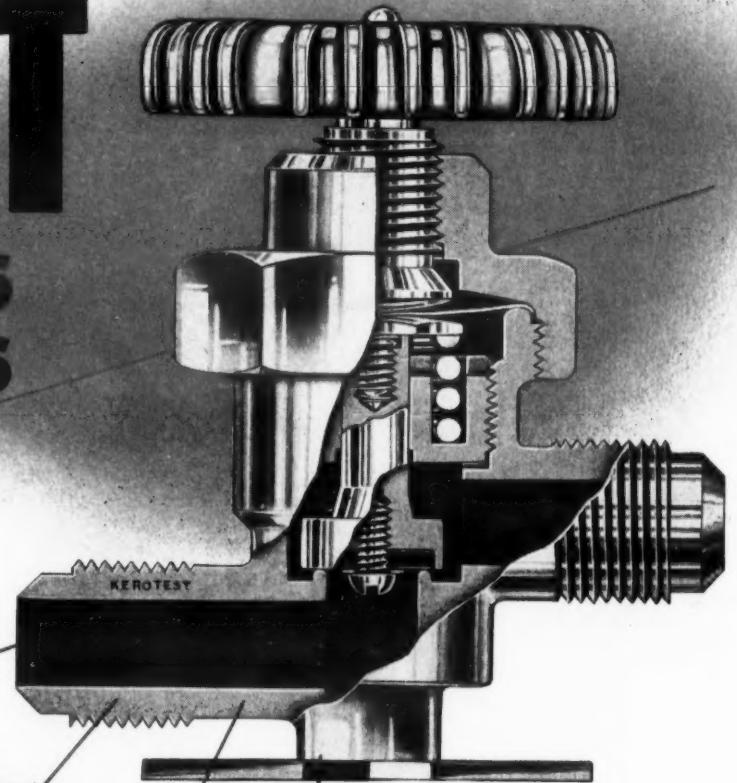
He will be able to concentrate on product selling while his Johnny-come-lately competitors are engrossed in sales training and product orientation programs. He is a finished merchandiser, and takes advantage of that head start. He has proved methods of doing business, and he sticks by them.

KEROTEST

VALVES, FITTINGS and ACCESSORIES

for AIR CONDITIONING and REFRIGERATION EQUIPMENT

PRODUCTS OF OUTSTANDING QUALITY AND DEPENDABILITY



FOR TOMORROW'S
MORE PRACTICAL
FOOD
PRESERVATION



Round the clock—postwar Air Conditioning and Refrigeration improvements and developments will bring "Better Living" to a peaceful America. In rural and city homes, the corner grocery store, the theatre, the big department store, even the plant and office—each will enjoy safer food protection, more profitable sales, greater working comfort, more efficient production.

Yes, "Better Living" is coming—with Victory—and Kerotest Valves, fittings and accessories will be an essential part of the picture.

In the meantime, Kerotest welcomes the opportunity to work with you in the development of your refrigeration and air conditioning projects for post-war applications—to help bring a new day closer . . . sooner

KEROTEST MANUFACTURING COMPANY
PITTSBURGH, PENNSYLVANIA



FOR TOMORROW'S
MORE PROFITABLE
RETAILING



AIR CONDITIONING
FOR BETTER LIVING



Filtrine
HIGH EFFICIENCY

STORAGE TYPE
WATER COOLERS
Cabinet & Remote Models

For heavy duty installations in
Cafeterias, Mess Halls, Steel Mills,
Shipyards, Foundries.

BE SAFE . . . USE FILTRINE

Water Coolers for all purposes including circulating systems, film processing, x-ray cooling.

Low Temperature Models now available for bakery and bottling plants. Water Cooled to 34 degrees.

Quick shipment. Write for details.

FILTRINE MANUFACTURING CO.
53 Lexington Ave., Brooklyn 5, N. Y.

"Manufacturers for over 40 years"

Will the Retail Appliance Field Have Too Many 'Neophytes' After the War?

Newcomb Says That 'Boom' May Be in Dealers Rather Than Buyers

CINCINNATI—Retailers' anticipations of a boom market in electrical appliances during the first years after the war may not be as long lived as now believed, members of the National Industrial Stores Association were told here Aug. 29 at the group's eighteenth annual convention at Hotel Netherlands Plaza.

Pointing out that the immediate postwar sellers market may switch to a buyers market much more quickly than is now expected, T. J. Newcomb, sales manager of the Appliance Division of the Westinghouse Electric & Mfg. Co., said:

CAN'T 'SLOP' THEIR WAY

"I don't believe any one involved in retail selling—from the manufacturer to the Main St. Store—can 'slop' his way to lasting prosperity on the golden chariot of a postwar buying boom.

"To stay in retailing every one

of us must plan, must assure customer satisfaction, and must know how to operate on a business-like basis. Otherwise, retailers who fail in these respects will be hard put when they have to start selling their customers.

"To stay in retailing, every one market, the Westinghouse executive urged the training and building up of sales forces now and in the "easy period" of selling immediately after consumer production is resumed.

MORE FULL-LINE DEPTS.?

Mr. Newcomb foresees in the postwar period more full-line electrical appliance departments and their products much more uniform and standardized as to brands. He added:

"This seems a very practical trend toward eliminating the consumer confusion that must exist when they are confronted with a multitude of brands and assortments."

He asserted that both the manufacturer and the retailer must continually check on the actual trade requirements, from both a service and product angle, to be certain the consumers' needs are being filled and that constructive efforts are being made to arouse consumer demand for additional products.

ELECTRIC RANGE GAINS

In a review of the postwar market, Mr. Newcomb declared that many electrical appliances are still in their "infancy" on the basis of public use.

"Electric ranges," he added, "have a national saturation of 13% of wired homes. Yet, its growing consumer acceptance is definitely established by the fact that in 1933 its chief competitor—the gas range—sold at a ratio of about 15 gas to one electric. In 1941—eight short years later—the ratio was reduced about three to one."

CHANCE FOR HEATER SALES

The electric water heater, with a national saturation of only about

4% of wired homes, has growing consumer acceptance and with the rapid development of automatic cycle laundry equipment, its acceptance will increase, Mr. Newcomb said.

OTHER POSTWAR APPLIANCES FOR POSTWAR MARKET

Other electrical appliances for the postwar market will include the clothes dryer, home freezers, ironers, and small appliances such as roasters, heaters, coffee makers, grills, heating pads, and others.

He described the general outlook for the postwar competitive picture as "Kaleidoscopic," because every conceivable type of retail outlet is planning to be in the electrical appliance business, and the same thing is true for the distributing and manufacturing ends of the business. Mr. Newcomb said:

SCREWBALL ERA IN SIGHT?

"It appears that the appliance industry may be knee-deep in 'neophytes', from which most anything can happen. From the manufacturing angle there will be products, some of which may be attractive in design and price, but loaded with latent maintenance liabilities.

"Combine this with distributor and retail distribution that may be inexperienced or have an intent to 'buy their way into the market' and we might be confronted with tactics and policies on the 'screwy' side."

Restrictions Off on Number of Models In Stove Lines

WASHINGTON, D. C.—WPB announced Aug. 30 that restrictions limiting the number of models and fuel types of domestic cooking appliances and heating stoves have been removed.

There still will be no "dressed up" stoves, however, since accessories such as high closets and high shelves for coal and wood and combination ranges, and waist high boilers on gas ranges, are still prohibited, WPB officials explained.

The action was taken to remove restrictions on the number of models and fuel types permitted in order to make it possible for the recent "spot authorization" regulation to apply to these products. It was felt also that these restrictions had already been broadened to the point where there was no further justification for them.

Schedule B of Order L-23-c (Domestic Cooking Appliances and Domestic Heating Stoves) which specified the number of models and types of stoves which could be produced was deleted from the order.

'Biggest Ford Outlet' Takes Admiral Line

SEATTLE, Wash.—William O. McKay Co., claiming to be the world's largest distributor of Ford, Mercury, and Lincoln Zephyr cars, has been appointed distributor for Admiral Corp. in Seattle and Spokane, Wash., announces J. H. Clippinger, Admiral vice president in charge of sales.

Heading the McKay Appliance Co. division of the parent company will be C. V. Tinker, who started with McKay in 1922. At present he is regional director of the Washington Purchasing Agency Association. After the war McKay Appliance Co. will maintain showrooms and warehouses in both Seattle and Spokane.

William O. McKay, founder and owner of the company, was the original head of the Seattle Civilian Defense, twice chairman for the War Chest, and is a former president of the Chamber of Commerce and Rotary club. Ten years ago he was chosen Seattle's "First Citizen." He is now a lieutenant colonel.

Signs of the Times; Dealer Back In Business

SUMTER, N. C.—Bill Cannon, who closed up his appliance business in 1942 because of war shortages, has returned to open a service shop in preparation for the return of major appliances to the market. Mr. Cannon originally founded the Cannon Electric Co. in 1935.

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'Community' Freezer Firm for Employing War Veterans Incorporates

SKANEATELES, N. Y.—The community-sponsored plant to manufacture home freezers and vacuum cleaners here and thus provide jobs for returning war veterans has been incorporated as Flannigan's Industries, Inc., with a capital stock issue of \$150,000, already oversubscribed.

Site for the plant has been purchased and consists of part of an old paper mill plant, which will be remodeled.

Heading the firm is Robert S. Flannigan, mechanical engineer with long experience in the vacuum cleaner field, who has been chief instigator of this community project.

Other officers are Raymond Piper, vice president; the Rev. Louis M. Sweet, secretary; and Edward W. Feeley, treasurer.

As previously announced, the firm will do little manufacturing itself, concentrating on assembly work. A large sales organization is planned.

Procedure to Provide Tools For Trainees Arranged by WPB

CLEVELAND—A plan has been worked out by G. W. Weston and Curtis E. Anderson of the Business and Repair Service Branch, Service Trades Division, WPB, that will be helpful in procuring refrigeration service tools for trainees who have completed their training under the National Refrigeration Manpower Training Program.

This was announced last week by W. R. Kromer, national Training Program director.

In order to obtain such specialized tools, higher priority ratings are required and three months' time in securing such ratings is also necessary.

Accordingly, it has been suggested to local training committees that a list of tools desired by the trainees be made up three months before the classes graduate. Such a list should show the name of the trainee and the exact number and kind of tools that will be required. After compiling this list the training coordinator or instructor should write a letter certifying that the tools are for a certain number of trainees who will finish their course on a certain date.

Then the coordinator or instructor should furnish the complete list of tools required plus his letter of certification to the nearest refrigeration supply jobber or other source of supply, who will in turn arrange to secure delivery. The supply jobber will forward the letter of certification with a WPB-547 application to the WPB, where arrangements have been made through the Service Trades Division to handle such orders expeditiously.

Bendix Names Hunter Eastern Stores Head

SOUTH BEND, Ind.—Frank J. Hunter has been placed in charge of eastern department store operations for Bendix Home Appliances, Inc., here. Mr. Hunter previously was with the Hoover company for 22 years, serving as eastern sales manager for 10½ years. At one time he was in direct charge of 3,000 retail men, operating out of 100 district offices.

2 Price Ceilings Set On McKee Icebox

WASHINGTON, D. C.—Two different retail price ceilings—\$97.50 for ice companies, and \$104.50 for other retailers—have been established by OPA for resale of a McKee Mfg. Corp. icebox purchased from the Procurement Division, Treasury Department.

The box is model F52 with a rated ice capacity of 100 pounds and rated food storage capacity of 6 cu. ft.

For all sales at wholesale the maximum price is set at 62½% of the \$104.50 ceiling, or \$65.31. Retailers are permitted to add actual transportation charges to the selling price, provided the purchaser is informed of this additional cost by listing same on the price tag.

Dealers Will Get Only a Few of the 18,420 Electric Ranges In Production

But Those They Do Get Likely To Be 'Complete'

WASHINGTON, D. C.—Dealers will get a very few of the 18,420 new electric ranges that WPB recently authorized five manufacturers to turn out during the last half of this year, since most of them will go to the government for Federal Housing projects.

Most of the new ranges will not be available until the end of the year, although Gibson Refrigerator Corp., which has a quota of 2,500, says that it will make some shipments starting in October.

The Gibson range combines features of three of the firm's 1942 table-top models, having three burners plus a deep well cooker, three storage drawers, an oven with two heating elements, an oven regulator, and an interior light. In its postwar

models Gibson is planning refinements in the way of a higher back-rail and a longer built-in lamp.

The 794 ranges to be made by the Lindemann & Hoverson Co. will follow pre-war design and will have deep well cookers and oven regulators. Some will have oven time controls.

Since the 3,000 stoves assigned to the Malleable Iron Range Co. will be three-unit apartment house models for Federal Housing projects, the design will be limited to bare essentials.

All three companies expect to complete production by the end of this year. No details have been given of the ranges authorized for production by the two other manufacturers—Frigidaire Division of General Motors, and A. B. Stoves.

Legal Battle Won For 'Pay-Now-For-Delivery-Later' Plan on Appliances

RICHMOND, Va.—The pay-now-for-postwar-appliances plan of Priorities Corp. of America, new appliance dealership here, has been approved finally by the State Corporation Commission, with important changes in the setup as originally organized, following a hearing after issuance of a cease and desist order.

Under the plan customers contract to purchase appliances which will be delivered as soon as they are available after the war. A down payment and regular instalments are required from the time the contract is signed.

The state commission has now stipulated that 80% of the money received on these contracts must be deposited with a trust company and the remaining 20% be covered with a bond of the corporation to provide full indemnity to the purchasers on the money they have paid to the

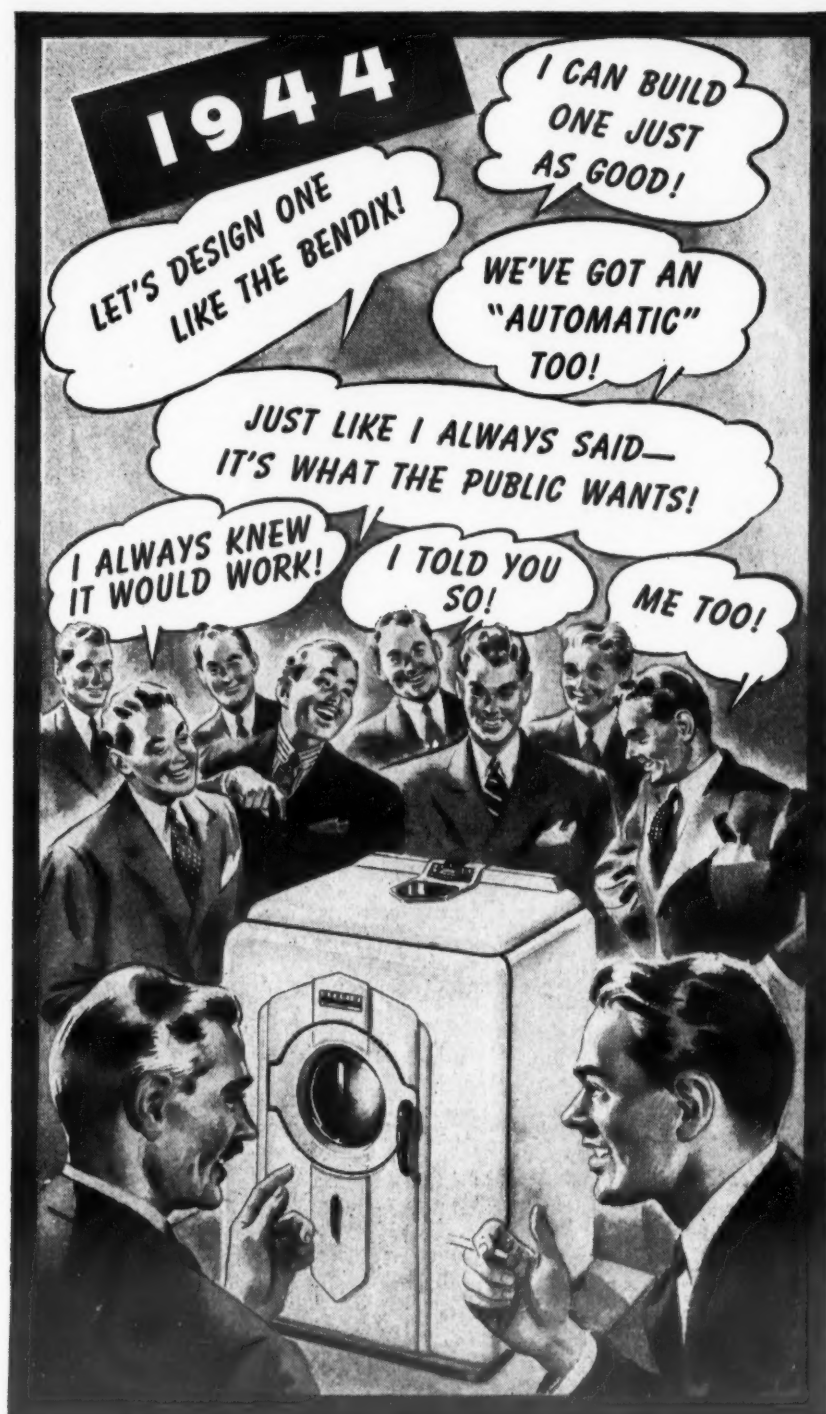
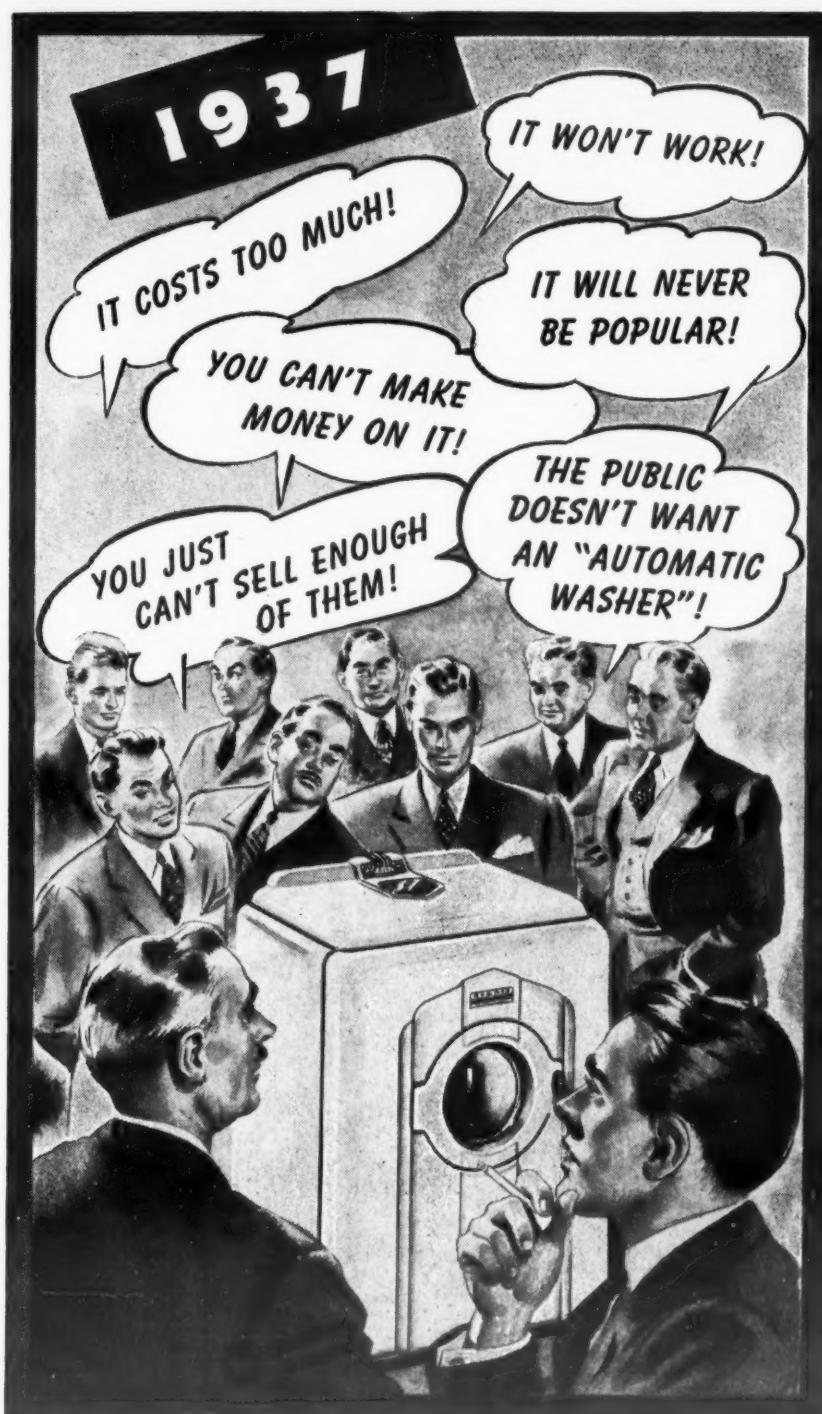
firm. In addition, officers and personnel of the company must be bonded.

Should the appliances contracted for not be delivered within a reasonable time after other dealers have made deliveries, all money collected from the purchasers on contract must be refunded. The firm is limited to maximum sales of \$25,000.

If a purchaser allows a contract to lapse after making the down payment and meeting some instalments, he is entitled to a full refund of all money paid in, the state commission has ruled.

The contract, however, does not now provide for liquidated damages due to uncompleted contracts. The matter of liquidated damages is thus left to the decision of regular courts.

Alvin V. Leake heads the firm, which has opened offices at 18 N. Eighth St., Richmond.



Me Too!

When an entire industry plays "follow the leader"—that's significant! For imitation is the sincerest form of flattery. But the Bendix Automatic Home Laundry defies imitation. It is, and will continue to be, the "one-and-only" of the field. Exclusive in its operation. The only automatic with over 300,000 pre-war machines in daily household operation. The only machine that can claim to be first in popularity—with

more women wanting to buy it than the 5 next most popular washers combined! And Bendix will again lead this fall, with a barrage of exciting ads in such magazines as Life, McCall's, Parents', True Story, Better Homes and Gardens, American Weekly, Good Housekeeping, and 23 Sunday newspaper supplements! With radio messages reaching two out of three radio sets day after day, from coast to coast!

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BENDIX HOME APPLIANCES, Inc., South Bend, Indiana . . . Pioneers and Perfectors of the Automatic "Washer" . . . Not Affiliated With Any Other Organization of Similar Name

Processing of Metals and Reproduction of Stratospheric Temperatures Assign Subzero Refrigeration to Significant Work at Willow Run

The Preservation of Rivets Against Early Hardening is Especially Important

By Ross Potter

WILLOW RUN, Mich.—Subzero processing of aluminum alloys has become an important procedure in the record-breaking production of B-24 Liberator bombers at the Ford Motor Co.'s Willow Run plant.

Aluminum alloy stock comes into the plant both in wire and sheet form in the condition called soft (SO), under which its softness and ductility remain invulnerable to age-hardening or to ordinary changes in room temperature.

Under furnace temperatures of heat-treat processing, the aluminum remains still ductile and soft (SW), but exposure now to room temperatures will within 20-30 minutes bring about the final stage of hardness (ST) which is the alloy's strongest condition.

To confine working operations however to within 20 minutes after the stock's emergence from the heat-treat furnaces proved impossible except under the simplest of operating conditions. The Ford Metallurgical Laboratories thus began experiments toward finding a holding process to suspend this premature hardening.

Tests with subzero refrigeration showed that constant temperatures of plus or minus 5° F. retarded the

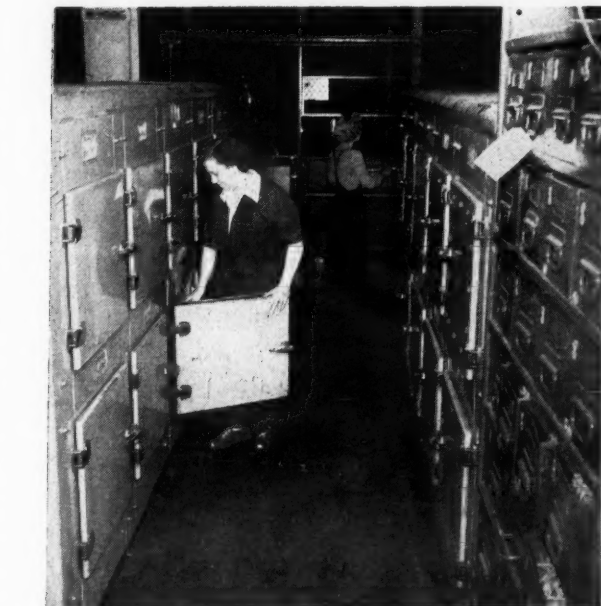
aging process to an extent that no appreciable changes in hardness occurred until after 14 days had passed.

Moreover, stock held beyond that time could be reprocessed through heat treat, quench, and storage under subzero temperatures with results parallel to those first obtained.

Most important by far is refrigeration's part in controlling the metallurgical characteristics of the more than 150,000 "icebox" rivets that go into every finished bomber.

There are 685 different classifications of rivets used, but all of them enter the plant as spools of aluminum wire, varying in size and alloy composition. They are mounted on turntables that feed into 22 cold-heading machines, and are chopped and formed into the 7 million rivets that are turned out every day.

Approximately one third of these, rivets 1/4 in. or more in diameter, will be icebox rivets. The bulk lots of all rivets are sent from the cold-heading machines direct to the rivet storage crib, and here the icebox rivets, which must be processed further, are set in special basket containers and sent on their way by overhead conveyor.



The large Ford-designed refrigerators shown at the left serve as distribution centers for the 150,000 "icebox" rivets used in each B-24 Liberator bomber. The motor scooter at the right is used in emergency calls to deliver rivets not on hand in the local storage boxes, one of which is shown.



The rivets are given a chemical bath and coated against corrosion, then proceed to the heat-treat furnaces (at 950° F.), into a cold-water quench (at 68° F.), and in light of the 20-minute time limit now in

effect, they are returned again to the rivet storage crib and placed under subzero holding temperatures.

Three unusually large cabinets take care of this. Built to Ford specifications in May, 1942, less than a month after the first of the wing sections was brought to Willow Run for production, the three cabinets between them hold enough icebox rivets of all categories to supply the entire plant's production for two days.

Each of these cabinets, equipped with a three-ton built-in compressor rated at 1,600 lbs. capacity, is divided into nine compartments, each compartment accommodating 15 sliding trays, each tray holding four tubular canisters filled with a specific kind of rivet.

Each of the trays is labeled accordingly. The inner wall into which the trays slide maintains the cabinet's -20° F. temperature even when the compartment doors are open.

The cadmium-plated tubes also are of Ford design, and made at the company's Rouge plant. They measure 2 1/2 x 11 inches, with a slipover cap to allow counted withdrawal of the desired number of rivets under conditions of minimum contact with the warmth of workers' hands.

The rivets are checked and sorted before entering heat treat, are placed in these containing tubes as soon as they are taken from the water quench, and proceed directly to the rivet storage crib for subzero holding.

At intervals of one hour the specific sizes and quantities of rivets needed in the various operating sections are delivered to the 60-odd individual refrigerated holding boxes on the production floor. A written order is picked up in return, indicating each box's anticipated replacement needs in another hour's time.

Each of these boxes holds 48 tubular containers, set vertically into a cross grating through which they slide and rest on the cold-compartment floor. The refrigerating unit is self-contained in the cabinet, and set below this compartment.

A lift door, operated by pneumatic foot pedal, gives access to the rivet tubes. The tendency of cold air to settle rather than to rise allows this arrangement to maintain minimum cold air loss, although carelessness on the part of the workers can, and does, work against this.

Controls in each box can be set for temperatures down to -45° F., but the plant's refrigeration maintenance department records variations between -7° and -39° in different boxes on the production floor. Temperature readings are charted and filed throughout the day, and where too-constant use of any box is indicated, a lower temperature is set, or additional boxes are installed.

Records are kept also of the rivet withdrawals from each box, and any containers still unused after four days are returned to heat treat for reprocessing.

In the few instances where an inordinate delay must be anticipated between the time of the rivets' release from refrigeration and the

moment of application, the use of cellophane containers for the necessary rivets has been found effective.

This procedure is used only in special instances, however—conditions calling for riveting in almost inaccessible parts of the plane, or in emergencies calling for repair riveting.

When this condition occurs, the rivets are pulled from the central storage cabinet, counted off by a machine which automatically trips the required number into a cellophane bag, the bag is sealed to prevent the escape of cold air and put immediately into a portable refrigerator, and a motor scooter takes refrigerator and all direct to the riveting crew on location.

The cellophane bag, in addition to protecting the rivets from outside warmth in the course of being passed along, also allows the retention of the cold air.

(Concluded on Page 15, Column 1)

A FILTERING ELEMENT IS NOT ONLY DESIRABLE BUT IMPERATIVE IN AN EFFICIENTLY OPERATING DEHYDRATOR

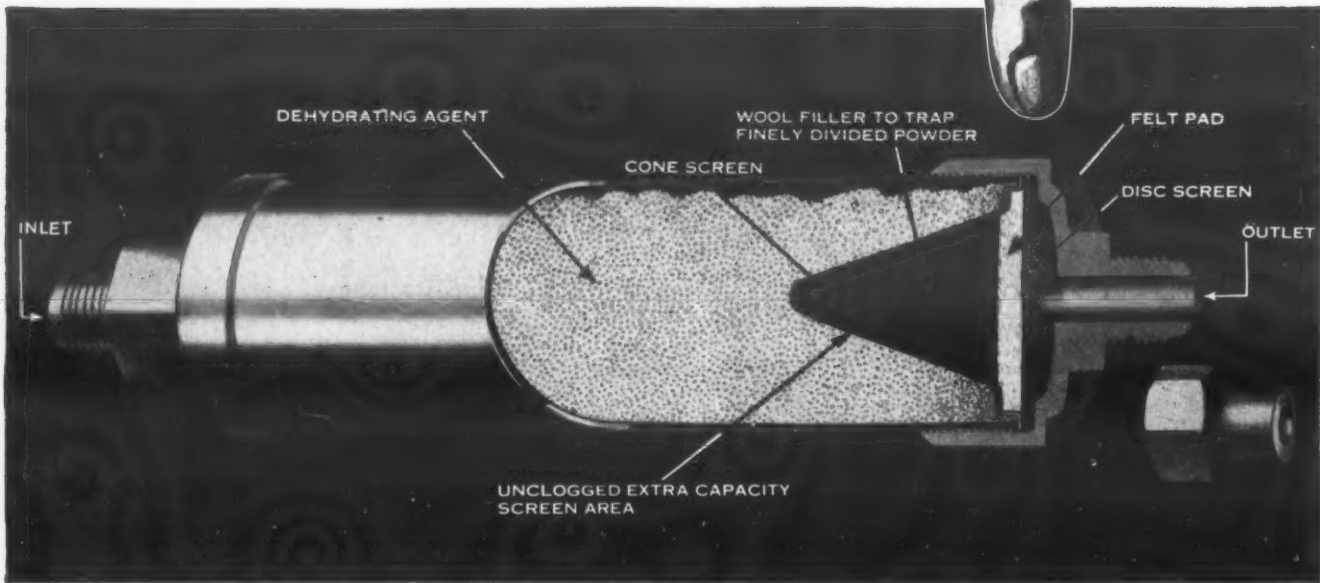
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With the M.B.C. CONE SCREEN OUTLET, such finer crystals and powder are forced to the base of the cone, leaving the center and tip of the screen open to the free flow of refrigerant.

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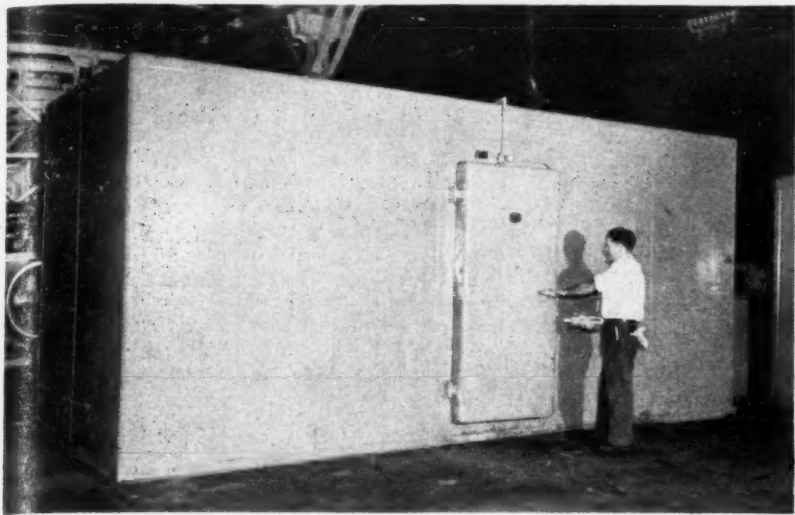
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The Army Requires Preflight Testing Against Stratospheric Cold



This holding box serves only as a trouble shooter. It is used to chill aluminum skins when emergencies slow down the forming dies.

Materials such as rubber, wiring, cables, and coated fabrics are tested first in simplest form, then later as finished parts in completed assemblies. Thus the testing cabinet passes its final OK on hydraulic systems, controls, and recording instruments used in the bomber.

The use of electric refrigeration in spot welding has been almost entirely eliminated at Willow Run. While refrigeration of the electrode tips did prove effective in retarding tip pickup of aluminum, and in prolonging tip life under good welding conditions, mechanical refrigeration also proved to be more expensive, in proportion to its beneficial effect, than the use of water from artesian wells nearby, according to factory officials.

Water temperature in these wells runs consistently 50-52° F., and they are deep-water wells. Mechanical refrigeration, with attendant purchase and installation costs running into four figures, plus the necessity also for at least one full-time maintenance man for the system, is comparatively impractical here.

At present mechanical refrigeration is used with only two machines, one doing pulsation welding, the other top-speed spot welding under emergency rush conditions. The production rate is slower, of course, but entirely adequate to the scheduling called for.

When the first of the sub-contracting arrangements within the Ford Motor Co. was effected in March, 1942, part of the welding procedure



This testing cabinet, capable of going down to 90° below zero F., reproduces extremes of temperature, pressure, and vibration.

(Concluded from Page 14, Column 5)
tion and return of the unused repair rivets, which often are specially sized and reserved for emergency use. This system, however, has not been found necessary, or practical, for general use.

The 7 million rivets turned out each day supply not only all operating sections within the plant but also many of the smaller Ford factories and sub-contractors working for the B-24 bomber.

The majority of the smaller plants doing this work have their own facilities for heat treating, quenching, and freezing the icebox rivets used. A few don't, and to these the SW rivets are expressed by refrigerated truck. Refrigerated holding boxes on the other end take over upon delivery.

The distances between Willow Run and these satellite production units seldom exceed 25 miles. Most of them are within the orbit of Detroit and the smaller cities surrounding it.

Of importance in an emergency capacity is refrigeration's part in the processing of the aluminum alloy sheets which form the outer surface of the bomber and which appear, in various shapes and forms, throughout its internal structure.

Those which are to be stamped into such shapes by the huge presses that dominate the southwestern end of the plant undergo a heat-treat and quench processing essentially

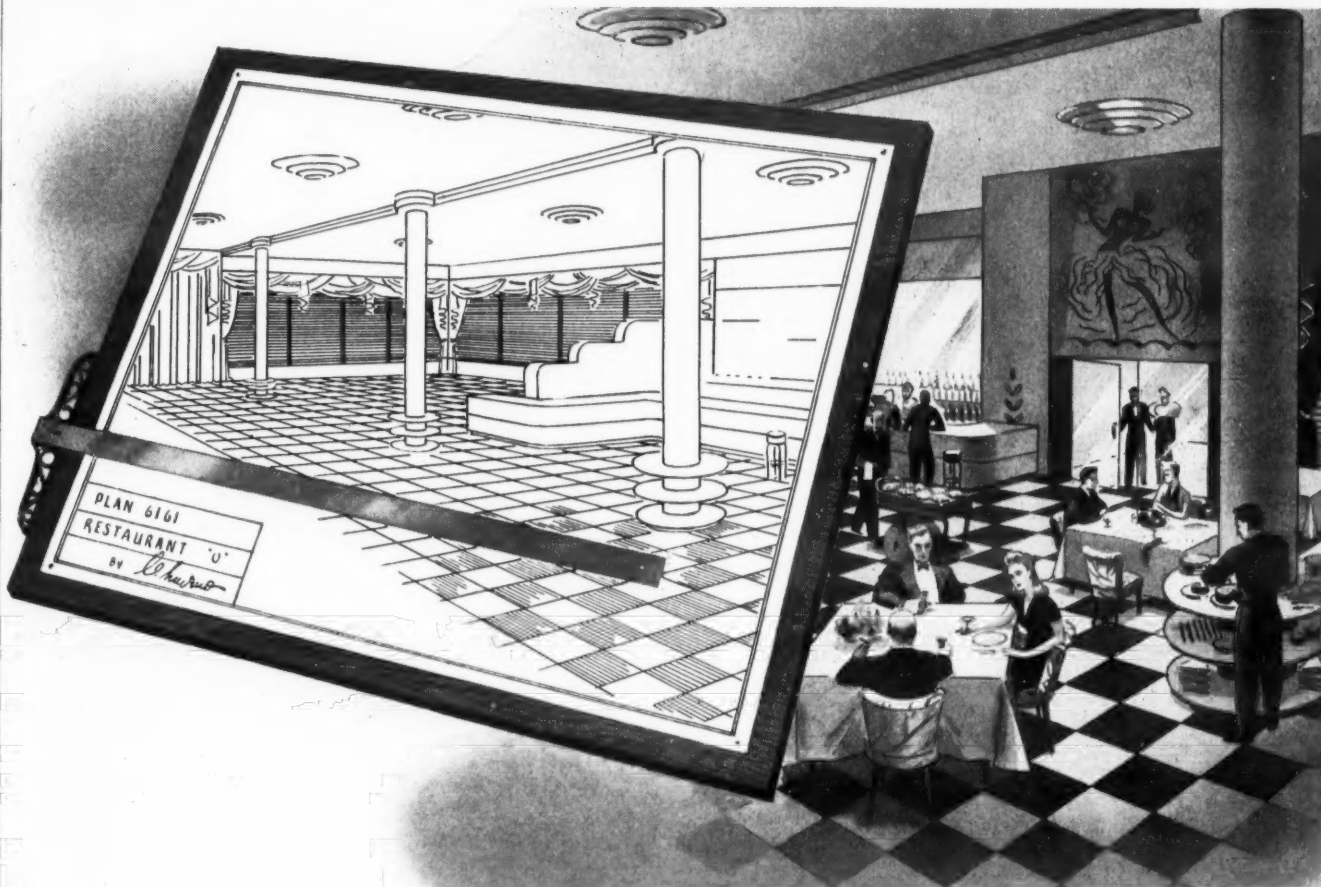
the same as that scheduled for rivets.

Ordinarily, the sheets then proceed directly to the presses. It is only when extraordinary obstacles of delay occur that refrigeration comes into the picture, to hold the skins against the hardening effects of the press room's customary 85° F. temperature.

The holding box kept ready for such emergencies has interior specifications of approximately 20 x 12 x 10 feet. Its controls are set for -30° F., but factors such as repeated openings of the walk-in door and quick pile-up of the skins when press trouble occurs draw the temperature up considerably when press-room procedure does stall.

Since 5° F. is the lowest temperature required, the operating margin maintained is more than adequate. And although the holding box's importance in the production run is one of trouble shooting only, the 250,000 feet of drawn aluminum sections heat-treated daily make its function necessary to the system.

Subzero treatment is used at Willow Run also in the preflight testing of various materials and instruments which, in the air, will be subjected to extremes of temperature, pressure, and vibration. One cabinet imposes all three conditions simultaneously, using an eccentric vibrator, a pressure pump, and a refrigeration unit that takes the temperature down to the -60° F. required by Air Forces specifications.



YOUR SHARE of Postwar Restaurant Air Conditioning is on the Drawing Boards Today

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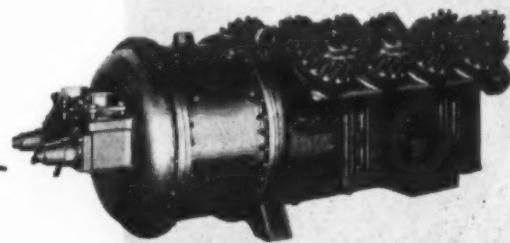
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SEPTEMBER 11, 1944
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'John Doe, Prop.' Is Envied Man

AMBITIOUS junior executives in large corporations no longer seem to be aiming for the president's chair, or for a juicy vice presidency. Today they're angling for a distributorship, or a dealership in California or Florida.

Scratch a sales manager today and you find a potential distributor. Get chummy with a field representative, and you find that he has already picked out the city in which he wants to establish his dealership.

Going a bit further, we find a similar trend in the manufacturing field. We know of some manufacturer's engineering department \$15,000-a-year jobs going begging. Engineers qualified to fill such jobs may today be getting only a third that sum, but they aren't biting. Fact is, they've been working on a new wrinkle in their home workshops, and they plan to go into the manufacturing business themselves.

SMALL FIRMS SHY AWAY FROM CORPORATION OFFERS

Right in the same groove are the small manufacturers who are spurning the fancy offers of giant corporations. We know of at least three mighty concerns which have been attempting unsuccessfully to buy their way into the air conditioning and refrigeration field by acquiring "some small, struggling outfit." (Confidentially, they haunt us!)

Time was when the man who had labored long and mightily to build up a little firm of his own was happy to sell out for a million bucks and spend the rest of his days relaxing in the Florida sunshine. But not today. His future as a small manufacturer in this business looks too good to him.

The professors, when they finally catch up with this trend, are going to be as startled as the preacher who discovered that sin was fun. This trend

They'll Do
It Every
Time
By
Jimmy
Hatlo



is all wrong, according to the books.

All the economists tell us that the war has accelerated the process of big business shoving out little business. They weep bitter tears for the small business man, and say that with his eventual strangulation our "way of life" will pass. Why, then, are so many brainy men, well on their way upward in big corporation executive circles, so anxious to get into business for themselves?

Well, partly it's a matter of taxation and frozen salaries. The men who've really made money during the last few years have been sole owners, or partners. (If not incorporated, they've had no excess profits tax to pay.)

The salaried man—particularly the one who works with wholesalers and retailers—has seen with mounting envy how brains and energy can be rewarded commensurately when one is in business for oneself.

BIG SALARIES ARE DUCK SOUP FOR THE TAX COLLECTOR

And the prospect of the terrific reward—say, \$50,000 to \$100,000 a year—for becoming a chief executive of a giant corporation no longer seems like the pot-of-gold at the end of the rainbow. When the tax collectors finally get through wringing out the high-salaried brass hat, he has less left over, often, than many of his independent wholesalers (who find it easier to allocate expenses than does the salary-and-bonus man).

Ten years ago a refrigeration parts jobber we know was working for a relative pittance in the labyrinthine offices of one of the nation's largest refrigerator manufacturers. Today he wouldn't trade places with the president of that giant concern. He's not only better off financially, but he doesn't carry the same burden of griefs and headaches.

DISTRIBUTOR HAS GREAT FUTURE

Instead of spending most of his creative energy trying to extricate himself from the intricate and excruciating throttlings of labor unions and government bureaus, the small independent can spend much of his useful time concentrating on doing his real job and making money.

Or at least, so it seems to the envious corporation executive. When, as, and if said corporation executive goes into business for himself, he

probably will find that the grass isn't so green on that side of the fence as it now appears to his covetous eyes. But that possibility doesn't deter him now.

Two things can be deduced from this tremendously prevalent attitude. One is that "insiders" among the manufacturers in this industry are convinced that dealers and distributors for their products are going to make a "killing" in the decade to come.

The other is that the wholesaler's future in this business isn't nearly so dark as is sometimes pictured. In fact, we are inclined to believe that a lot of the premature mourners over the bier of the theoretically-deceased wholesaler are simply trying to buy up a distributorship as cheaply as possible.

LETTERS

'AUSTRALIA OFFERS A GREAT OPPORTUNITY'

Headquarters U. S. A. 80S
A.P.O. 927

Editor:

I have just received a large bundle of back issues of the "News" that finally caught up with me, so I have been occupied in trying to get up to date.

I have spent the past 18 months in charge of refrigeration in the South Pacific Islands. During the tour of duty I had my finger in refrigeration construction and maintenance from Fiji to Bougainville, I might remark, with some very interesting experiences as well as some amusing incidents.

I would like to add, in passing, that the refrigeration industry deserves a lot of credit for the equipment that has been produced. In nearly every case, the units have been well designed and fabricated and have operated under very trying conditions, with wonderful efficiency.

A few months ago I was sent to Australia to help clear up some of their refrigeration problems. I thought I would be here for six weeks but it looks as if I am here to stay, because I have inherited the responsibility of purchasing all the Army's Refrigeration requirements in Australia.

I am very pleased to have the opportunity to get such a first hand picture of the Australian refrigeration industry and to study their production facilities, as well as get a picture of the opportunities offered here for postwar activities.

I would like to say that the Aussies, in our business, are a fine bunch, and I am happy to count many of the manufacturers and engineers as very good friends.

I am also firmly convinced that Australia offers a great opportunity for refrigeration development, especially in the low pressure field.

The country is also a fine place to live, with its ideal climate and friendly hospitable people. There is also plenty of good beer and the Aussies know how to use it. I also believe any American coming out here to go into business would be right at home—as far as government regulations are concerned as the Aussies have a government that would make any New Dealer green with envy.

Congratulations on your good work with the News—it is really a swell way for us to keep up. My copies are really passed around, and are always in demand by the men in my section, so keep them coming.

I was pleased to note that Lt. Nixon is still in the going. The last time I saw him was in New Zealand, where he was trying to get a new bottom in his sloop-of-war. It seems as if he tried to take it in to some port by going over a reef—rather than through the prescribed channel. Jim MacAlpine entertained us with an enjoyable trip to Ratakua—the famous N.Z.Spa. I have not seen either Bob or MacAlpine since.

E. A. AUBURN, Jr.,
Captain

SOUTH AMERICAN 'HELP' DEMANDS APPLIANCES

Smoot-Beeson, S. A.

Editor:

We have just finished reading the Editorial of your July 3, 1944 issue concerning the Electric Dishwasher. We feel the way the writer does about the possibilities of the Dishwasher, since in this country we have had to do more or less the same spade work where the Electrical Washing Machine was concerned.

At one time here laundresses were a dime a dozen; about one year before the war because of construction work it was impossible to find a laundress. Today, construction work is over and the laundresses are returning to work but the first question they ask is: "Do you have a washing machine?" We are sure that in less years than many people would like to think, the same condition is going to exist regarding the Electrical Dishwasher.

We have formed a new company named Hasmo, S. A., to handle Home Appliances after the war, as an entirely separate organization, and the present one will continue to handle the automobile business, and we would greatly appreciate it of you, if you could send us the names and addresses of the several dishwasher manufacturers with whom we could get in touch, with the hopes of obtaining the distribution of their products for this market.

R. G. DE PAREDES

POLITICS IN THE GUTTER

Engineering Service, Inc.
Cleveland 13, Ohio

Editor:

Your column, Inside Dope, under date of Aug. 14, 1944, issue certainly has attracted the attention of the writer, and in turn am passing it on to some officer friends of mine now in Italy and France.

My thinking about the political situation on the home front certainly descends into the lowest level of the gutter and I know that I have plenty of company in this respect.

Your publication is to be complimented for carrying your articles, and I look forward to receiving each issue as it comes off the press.

EDWIN L. LAUBSCHER,
Vice President & Treasurer

'WE CAN FREE OURSELVES FROM POLITICAL BONDAGE'

Joe E. Parker Refrigeration Equipment
Atlanta 3, Ga.

Editor:

Let me say that I read your column, "Inside Dope," in the Aug. 14 issue of the News and heartily agree with the sentiments expressed therein, and I, too, have been looking for some of the 8 to 5 money but so far it has been a lot of conversation and no action. However, I sincerely trust that we can free ourselves from the political bondage of regimentation such as we have in this country today.

J. E. PARKER

Applicants Find 'Red Tape' Not Too Thick in Reconversion Program

Small Concerns Seeking To Make Electrical Products Predominate at N. Y. WPB Offices

NEW YORK CITY—"Spot authorization" for the manufacture of civilian goods apparently involves comparatively little governmental "red tape," but that does not imply that the "go ahead" signal is freely given just for the asking, according to a survey of War Production Board's regional office here.

Here, as elsewhere, granting of "spot authorizations" depends chiefly on the labor supply. At present there are fair stockpiles of most common materials, so that, except for some critically short items, a would-be manufacturer of civilian goods can usually obtain what he needs, it is said.

MUST HAVE LABOR

But labor is still a problem. In the New York City area, for example, there is an acute shortage of common labor, so to obtain authorization a producer must convince the WPB that he has enough labor without interfering with war production.

First step in obtaining permission is a discussion with a WPB regional analyst. In the New York City office there are 60 analysts, divided into 13 different groups according to end products. The manufacturer outlines his present situation and tells the analyst just what he wants to make. The analyst then explains what the manufacturer is permitted to do, and if they find that the manufacturer is eligible for filing applications, he does so.

Only two applications are required: WPB-4000 and WPB-3820 Revised. Form WPB-4000 is the actual application for permission to manufacture, while WPB-3820 is a statement of the producer's present and anticipated manpower situation.

These forms are relatively simple. On WPB-4000 the applicant must give his name and address, a reference number, proposed production schedule, and a list of the controlled materials needed for the program. If the applicant has been making the products under CMP allotment, he also must indicate his allotment number and tell where he got it.

Another section of the form lists the WPB orders involved in the products to be made, and provides a blank section for remarks and a blank section for a letter of transmittal answering four questions WPB asks about present and past production.

QUESTIONS ON MANPOWER

Form 3820, which covers only one side of a letter-size sheet, asks how many more workers will be required by the proposed production, the number of workers now employed, and what changes in the proposed production the applicant would have to make if he doesn't get the manpower he says he requires.

Form 3820 is filed in quadruplicate, 4000 in duplicate. Copies of Form 3820 are sent to the War Manpower Commission in the applicant's area and to his Production Urgency Com-

mittee, if there is one. These groups pass on the applicant's manpower requirements, and WPB is supposed to follow the instructions of WMC. Form 4000 is processed by WPB to determine if the applicant can obtain the material and if he has the necessary facilities.

Many of the applicants who have appeared at the WPB office in New York City since the "spot authoriza-

tion" order went into effect Aug. 15 want to make electrical items, it is reported, concentrating on electric hotplates, small broilers, and other heating equipment.

And half of the applicants are former war workers, including service men, who have never operated a manufacturing establishment but apparently think they can build and sell such goods before big manufacturers like General Electric Co. and Westinghouse return to the civilian field.

Small manufacturers predominate, however, in making applications. Most of these want approval for increased production of products limited by WPB restrictions. Some are now 100% on war contracts but have idle machinery formerly used for civilian goods. Few are manufacturers who have experienced cutbacks on government contracts.

Water Chilling System Cools Camp Theater

WALKER ARMY AIR FIELD, Kansas—Air conditioning has been installed in the post theater here, adding tremendously to the comfort of movie goers.

Originally a water cooler that was at an engineering warehouse in Denver, the air conditioning unit was sent here to be installed in Base Headquarters. Upon arrival it was found to be too large for headquarters use.

Post engineers made some changes to fit it for use as an air conditioner for the theater. Installation took three days. One of the main changes was the addition of a humidifier that keeps the humidity constant.

'Bill' Keefe Appointed To A.S.R.E. Committee

BUFFALO, N. Y.—W. D. "Bill" Keefe of Fedders Mfg. Co. has been appointed to the membership committee of the Central New York chapter of the American Society of Refrigerating Engineers by the executive committee of the chapter.

Levinthal Named Goldblatt Major Appliance Buyer

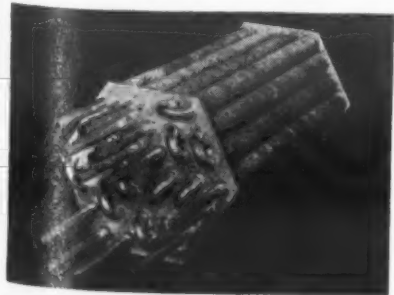
CHICAGO—Emil Levinthal has been named buyer of major appliances for Goldblatt Brothers, Inc. store here. He will work under Max Millman, merchandise manager for home furnishings.

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Rome Water Cooled Condenser Coils insure trouble-free condensing equipment. Used by leading compressor manufacturers.

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The versatility, dependable refrigerant control efficiency, compact size, durability, ease of inspection, and other advantages have made A-P Model 207 one of the most popular valves among Refrigeration Service Engineers responsible for thousands of installations. Adaptable to smaller types of units, display cases, ice cream cabinets, sharp freezers, and



air conditioning units, it maintains a constant superheat over a wide range of evaporator temperatures. Superheat is readily adjustable from 0° to 30° F. Capacity, from 1/4 ton Freon to 1 ton Methyl or Sulphur. Write for complete bulletin and service data.

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RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS

Refrigeration Research Group Grants Funds For 12 Projects

Studies To Be Made By Colleges Will Deal Mainly With Effect of Refrigeration on Foodstuffs

BERKELEY, Calif.—Grants totaling \$24,050 for 12 research projects at various colleges and universities have been announced by H. C. Diehl, director of the Refrigeration Research Foundation, which members of the refrigerated warehouse industry established last fall.

At the present time the foundation has a fund of \$250,000 for a five-year research program, but R. M. Hagen, president of the foundation, says that plans are being made to build up this fund gradually.

A finance committee appointed recently by Mr. Hagen includes Garth A. Shoemaker, Hygeia Refrigerating Co., Elmira, N. Y., chairman; A. T. Hampson, Merchants Cold Storage & Warehouse Co., Providence, R. I.; and R. C. Muckerman, City Ice & Cold Storage Co., St. Louis.

The first research grants by the foundation are as follows:

"A study of refrigeration methods, especially as to the maintenance of desired relative humidities, with respect to the preservation of various food products," W. L. Mallmann, Michigan State College, East Lansing, Mich., \$4,000.

"Behavior of frozen pack juices and concentrates in refrigerated storage," G. L. Marsh, University of California, Berkeley, Calif., \$3,000.

"Lengthening of the storage life of fruits by removal of volatile materials produced by the stored products from the atmosphere of the refrigerated room," R. M. Smock, Cornell University, Ithaca, N. Y., \$2,500.

"Eviscerated Poultry: Palatability and histologic changes during refrigerated storage at different temperatures," G. F. Stewart, Iowa State College, Ames, Iowa, \$2,500.

"The effect of methods of handling frozen meat after removal from frozen storage on quality and palatability of the cooked product," Gladys E. Vail, Kansas State College, Manhattan, Kans., \$2,000.

"Heat transfer aspects of refrigerated warehouse packaged goods in steady and unsteady state, as a function of physical properties and conditions," C. F. Kayan, Columbia University, New York City, \$2,000.

"An investigation of the chilling injury to certain vegetables during cold storage," L. L. Morris, University of California, Davis, Calif., \$1,800.

"A study of the effect of various conditions of freezing and storage on the quality of frozen beef," C. W.

Dubois, Louisiana State University, Baton Rouge, La., \$1,750.

"Studies on refrigerated storage of subtropical fruits with special reference to citrus and avocado fruits," J. B. Biale, University of California, Los Angeles, \$1,500.

"Retention of nutritive properties of foods by refrigeration. I. The effect of ripening, storage, and other methods of handling vitamins B₁ and B₂ of Midwest varieties of apples," H. H. Plagge, Iowa State College, Ames, Iowa, \$1,500.

"A study of the seasonal variation in the rate of transpiration of stored apple fruits," S. A. Pieniazek, Rhode Island State College, Kingston, R. I., \$1,000.

"A study of aerosols to explore

their application to refrigerated warehouses," W. L. Mallmann, Michigan State College, East Lansing, Mich., \$500.

Several other research studies are contemplated by the foundation along such lines as the removal of odors from refrigerated storage rooms, the determination of relative humidities at below freezing temperatures, and the behavior of meat enzymes at low temperatures.

Chicago School Moves To Larger Quarters

CHICAGO — Commercial Trades Institute, offering training in refrigeration and air conditioning maintenance and service, has moved its Chicago school into larger quarters at 209 W. Jackson Blvd. to provide space for additional training equipment and to prepare for increased interest in this field among war workers and war veterans, announces R. C. Anderson, manager.

The institute also operates schools in Birmingham, Ala. and Bloomington, Ill.

Leath & Co. Stores Plan Appliance Expansion

CHICAGO — Complete main floor departments handling major and small appliance lines will be established in all Leath & Co. stores, which have already taken on Crosley refrigerators and radios, announces J. A. Young, vice president.

Buying and merchandise head of the new department will be James Fisher, who was major accounts supervisor of Westinghouse Electric & Mfg. Co., Mansfield, Ohio, for three years. He had been with the OPA Cincinnati office for two years before coming to Leath. Previous experience included 15 years in appliance wholesaling and retailing.

Shelley Returns To Rich's

ATLANTA — Robert Shelley has returned to his prewar post of major appliance manager for Rich's, Inc., here after serving as fur buyer, to plan a broad expansion program in this department.

General Controls Has Larger N.Y. Quarters

NEW YORK CITY—To meet increasing demands and improve service to customers, General Controls of Glendale, Calif., has moved its New York factory branch into larger quarters on the sixth floor of the Architects building, 101 Park Ave., sometimes known as the "Construction Center" because it houses engineers, architects, and manufacturers' representatives in many closely allied lines.

Practical working displays showing the many uses of General Controls products in various industries are maintained in the new offices, which also have adequate stockroom space to supply customers' needs.

John Hammond is branch manager. He has had nine years of experience selling and installing controls on the Atlantic seaboard.

Recently General Controls moved its Cleveland branch into new quarters at 3224 Euclid Ave., with L. E. ("Rusty") Wetzell in charge.

New G-E Service Training



Previous courses were attended by more than 18,000 servicemen—the New School will further increase the G-E dealers' lead in the postwar market.

Your distributor is organizing G-E Service Training meetings in your vicinity. He'll be in touch with you to let you know the time and place. Ask him about the "T" Plan and other G-E service helps.

Brand-new material

Much important new service information will be presented in this series of meetings. Among the features will be:

- A slide film on washer wringers. The repair procedure for the W-1000 wringer will be covered in detail. And a script book will enable you to take the story home after viewing the film.
- A slide film on the new FEA Refrigerating Unit. The major mechanical features and servicing procedure will be presented. This is a "must see" picture! Also complete with script book.
- Small appliance shop-repair manual. For the first time, in one manual, detailed shop instruction is made available on irons, coffee makers, toasters, percolators, roasters, mixers, and cord sets.
- G.E. in the Low-Temperature Field . . . Postwar. You'll get a preview of General Electric's plans for Home Freezers and other low-temperature equipment.
- New Refrigerator Operating Manual. This fine new manual covering all models is intended for customer distribution. You'll find it an excellent good-will builder.
- Discussion of Postwar business. You'll find it helpful to know of prospects for business after the war . . . and what G. E. is doing now that should help in the postwar era.
- And many other additional subjects, both new and review, crammed full of profitable information.



Movies, slide films, and expert instructors will give a review of major appliance repairs . . . high spots taken from previous courses.

"T" Plans

General Electric has left no stone unturned to provide every bit of information needed to make service business profitable. The "T" Plans are another example of this. These are the home-study courses . . . already taken by more than 4000 servicemen.

The first "T" Plan covered G-E refrigerators. It was received so enthusiastically that it was followed up by a Plan on G-E ranges. General Electric plans to continue this practical form of instruction.

Plus plenty of printed helps

General Electric has spared no expense to provide complete guides for your service work. First, there's the "PRODUCT MAN"—a monthly service magazine which totalled more than 500 pages of valuable service aids in 1943. More than 4000 dealers get this magazine. Be sure you are a subscriber. Price, \$1.50 per year.

**Gilmer
BELTS**

Failure of a belt on air conditioning and refrigeration units is harmful to important war production. Be prepared to meet the demand for this type of replacement business by stocking rugged, long-lived, efficient Gilmer Belts. Gilmers are not only good-will builders . . . they are sure profit builders for you. Order a supply from your jobber now.

L. H. GILMER COMPANY
Tacony, Phila. 35, Pa.

Coast Retailers Slap 'Complete Home' Idea; Say Replacement Sales Would Be Retarded

SAN FRANCISCO—Strong opposition to the proposal that household appliances be regarded as part of the real estate and included in the valuation of a home for FHA mortgages is voiced by the Retail Furniture Association of California, Inc., which at its recent annual convention here passed a resolution against the suggestion.

The association points out in its resolution that depreciation is much more rapid on appliances than on a house. While a house may be logically financed for 20 or 25 years, appliances could not, since they would be worn out or obsolete long before that time.

Replacement of appliances because of obsolescence or new types of appliances would be retarded, handicapping manufacturers and utilities, if appliances were included in the financing of a house, contends the

This news story reveals how one group of retailers feels about the "complete home program" discussed in previous issues of the News, whereby the home builder outfits a home with appliances before selling it, and finances both the home and the appliances under a single mortgage.

association.

"It would be unwise in the postwar period, when all industry and trade will be facing many new problems and uncertainties, to attempt a radical and revolutionary change in merchandising which would further dislocate the internal economy of the nation," declares the resolution.

"In the case of linoleum, blinds, water heaters, furnaces, and built-in furniture, which have in some in-

stances been sold through contractors as part of the house, there has been a definite deterioration in quality and style.

"This cheapening process has been more costly to the consumer in the long run because of greater costs for repairs, maintenance, and replacement. Most appliances which can be easily detached by disconnecting a wire or pipe are subject to removal and many skips will result which will make it hazardous to finance the equipment, especially if the homeowner is liable for such losses.

"By short-circuiting the retailer, who will be responsible for service on these appliances . . . the power company, the builder, or the manufacturer? Certainly the retailer cannot afford, under these circumstances, to give service," concludes the resolution.

Prefabricated Houses Have Refrigeration

TOLEDO, Ore.—Houses at the rate of two an hour are being produced by Prefabrication Engineering Co. here, and the units can be assembled into four-room dwellings in 20 minutes, it is said.

Each house is said to be complete, including electric refrigeration, heating, hot water, and cooking, in addition to upholstered furniture.

Assemblies for three-bedroom models are also being produced, but these require more time—40 minutes instead of 30, it is reported.

The houses have been produced secretly for the Army during the past several months in a quantity large enough to house a large city, it is reported.

Fabricated in two to four sections, depending on the size, the houses are assembled in 20 minutes, after which the electricity, water, and sewer connections are the only things needed to complete the "production-line" dwelling.

Refrigerator With Glass Door? Survey Says Women Like It

TOLEDO, Ohio—Glass doors on refrigerators and ovens, and sliding glass doors on kitchen cabinets found favor with the majority of 15,204 women voting in a poll conducted by Libbey-Owens-Ford Glass Co. in conjunction with an exhibition of its postwar kitchen.

Some 55% want glass doors on refrigerators, while 92.6% voted for sliding glass cupboard doors. Some 93% would like the cupboard stored with food in glass containers. Glass vitrolite walls were favored by 98% of the women 84.6% want a "disappearing" sink, concealed by a cover when not in use. A serving wagon to save steps between kitchen and dinette was okayed by 87%.

More than 750,000 potential postwar home builders have visited the Libbey-Owens-Ford model kitchen, which has been exhibited for the past several months. On a nationwide tour, the kitchen has already been shown in New York City, Newark, Boston, Cleveland, Detroit, Philadelphia, Chicago, and other cities.

Mexico City Gets New Philco Service Facilities

MEXICO CITY—Opening of new Philco service facilities of the most modern type by Philco, S. A., exclusive Philco distributors in Mexico City, has just been announced by Dempster McIntosh, president of Philco International Corp.

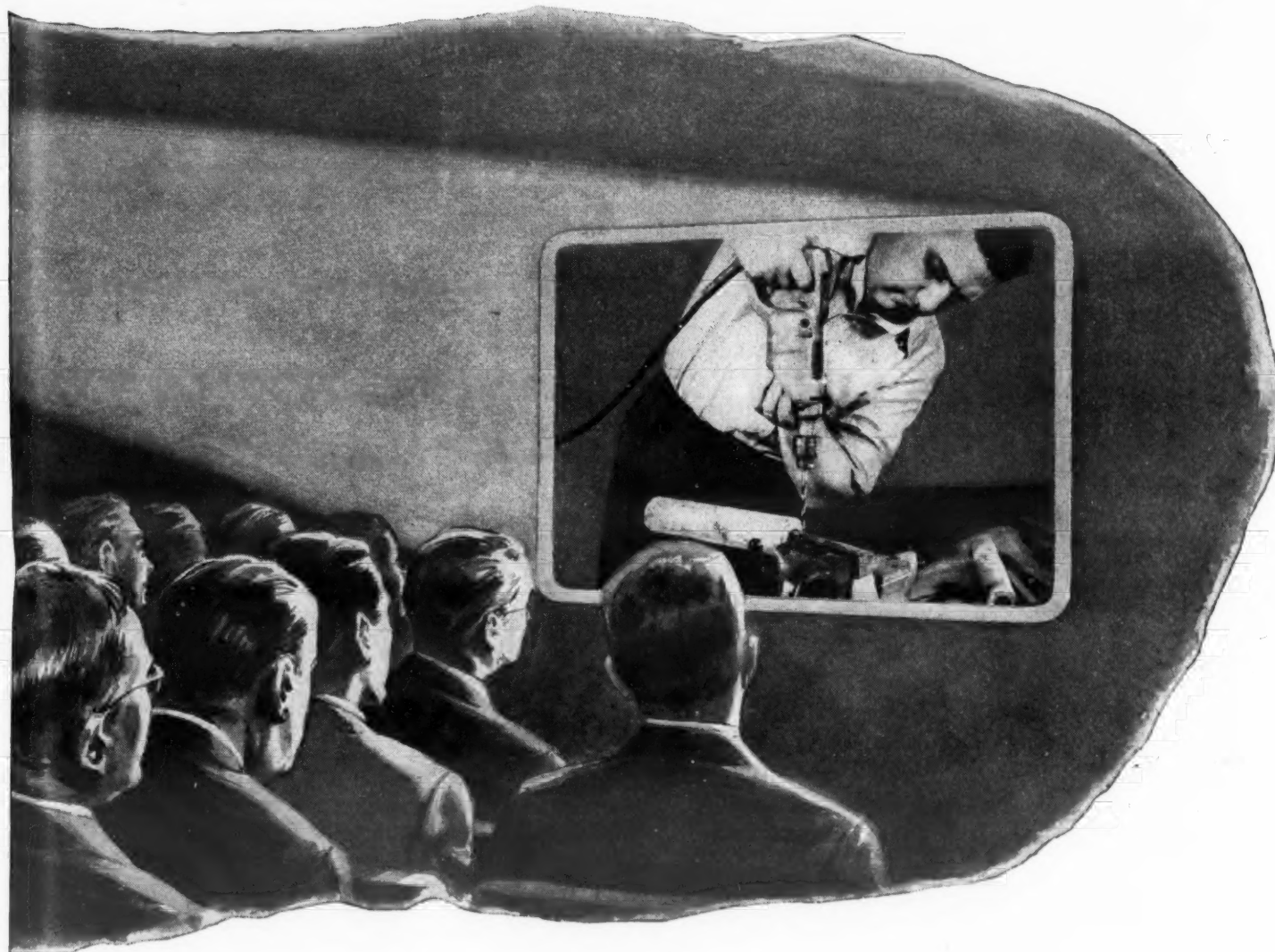
Ralph E. Chaplin is president of Philco, S. A., which will distribute Philco radios, refrigerators, air conditioners, dry batteries, parts, and tubes throughout the Federal District of Mexico.

Admiral and G-E Expand Radio Program Networks

NEW YORK CITY—Network of the "World News Today" radio program sponsored by Admiral Corp. over Columbia Broadcasting System Sunday afternoons will be increased from 43 to 62 stations Oct. 1. Cruttenden & Eger handles the account.

General Electric Co. has also increased coverage for its daily CBS feature, "The World Today," adding seven stations. Maxon, Inc., is the agency.

School starts in October



In addition, there's the new service manual on G-E Scotch-Yoke refrigerators. And, of course, there's the Appliance Service Handbook—a 214 page service story on all General Electric major appliances. More than 10,000 copies have already been distributed.

No matter what G-E product you're interested in, there's service information available.

An opportunity you can't afford to miss

These new G-E Service Training meetings will help you make the most of your repair business now and after the war. They have been planned to bring you a wealth of service information on many G-E lines.

The postwar battle for business is bound to be a hard one. General Electric is offering you the opportunity to get set for a bigger share of the appliance business by training yourself now. *General Electric Appliance and Merchandise Dept., Bridgeport, Connecticut.*

TUNE IN: "The G-E All-Girl Orchestra," Sunday 10 p.m., E.W.T., NBC. "The World Today" news, every weekday, 6:45 p.m., E.W.T., CBS.

FOR VICTORY

General Electric is working night and day to speed the attack. You can help, too, by buying and holding more War Bonds than before.

Everything Electrical for After-Victory Homes

GENERAL ELECTRIC

MANHATTAN
FHP V-BELTS

MORE POWER
Grips the grooves . . .
stops slip—flexible
construction for uniform
"pull"

LONGER WEAR
Endless cord construction resists internal heat and side wear.

SILENT RUNNING
Smooth running and noiseless on high-speed drives.

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of Raybestos-Manhattan, Inc.
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**IN REFRIGERATION AND
AIR CONDITIONING**

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Please send me your Free Booklet as mentioned in the Refrigeration News.

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Yankee Ingenuity Keeps Ice Plant Running on South Pacific Island

Former Dealer Headed Quartermaster Group, Now Directs Army Refrigeration School

By Sergeant Charles B. Dunham

CAMP LEE, Va.—While the attention of the world is centered on huge concentrations of striking power at focal points of attack, of tremendous importance in the military picture are those many small contingents stationed at outposts and supply bases throughout the world.

In many of these smaller Army units, Quartermaster service and supply functions are taken care of by composite Quartermaster companies.

Such a composite company was assigned to Tongareva Island in the Cook Island group in the South Pacific. Headed by Capt. William G. Barber, its primary purpose was to handle all Quartermaster activities in the area including a small fixed laundry, bakery, ice plant, shoe repair, clothing and equipment repair, commissary and class I, II, III, and IV supplies—food, individual clothing and equipment, gasoline and oil, and station property, respectively. In addition the company operated all water transportation.

Early in 1943 the QM company along with other units of the military occupied the island and built an airstrip to protect supply lines to Australia.

The climate in the region is hot, although men can become accus-

tomed to it. The humidity was high, but breezes usually tempered the climate.

Being within the tropics, refrigeration to preserve perishables was one of the more important needs of our troops. Portable refrigeration units and a 3.6-ton ice plant were installed.

There was for a time quite a bit of difficulty in getting sufficient water. Wells had to be dug into the ground—coral rock—and the seepage was very slow. An aerated water tower was built to reduce temperatures and re-use the water. This worked fine till a lull came in the prevailing winds, resulting in no circulation of air in the water tower. The problem was then partly solved by constructing a homemade fan out of salvaged lumber. No pulleys were available so they were made of wood. A gasoline engine was obtained and used to run the fan shaft.

The ice storage room would not keep ice without some means of cooling, necessitating the installation of a circulating brine system which provided 4,000 cubic feet of extra storage space maintained at a temperature of 35° F.

Due to the high humidity, frost accumulated on the forced convection or blower coils. A hot gas defroster



CAPT. WILLIAM G. BARBER
Before receiving his commission, he operated Takoma Refrigeration Co. in Washington, D. C. Since the first of 1944 he has been officer in charge of the Refrigeration School at Camp Lee, Va.

was set up to defrost the coils twice daily.

Minor mechanical problems were encountered from time to time. Points would burn out on the gas engine of the portable unit. When they did, spare "jeep" points were used after being filed to make them fit. There was no supply of belts, so ropes had to be used by splicing them to make them endless. The agitator motor on the brine tank of the ice plant burned up once and a gasoline engine had to be substituted. Diesel generators were used and oil filters were

repaired from scraps.

But despite climatic and mechanical problems, ice production was maintained at a steady rate—producing 7,200 pounds of ice every 30 hours. The ice was used in the hospital and in the mess halls to preserve food and cool beverages. Fishing trips were made to supplement the food served, and ice was taken along to preserve the fish on the way back.

Capt. Barber served as head of the Quartermaster composite unit on the island from early 1943 to the be-

ginning of 1944. He is at present officer in charge of the Refrigeration School at Camp Lee's Army Service Forces Training Center, where he served from August to October, 1942, before leaving for the South Pacific.

A resident of Takoma Park, Md., the captain is married and has two sons, aged 15 and 16. In civilian life he operated his own refrigeration company, the Takoma Refrigeration Co. in Washington, D. C. He was commissioned in the Army in 1942, having served with the National Guard since 1926.

Controlled Ventilation Keeps Soldiers Comfortable in Ships Lacking Portholes

CHESTER, Pa.—Ventilation equipment, adequately controlled, which supplies fresh, tempered air to the holds of ships, has permitted the Sun Shipbuilding & Drydock Co. here to convert portholeless ships designed as tank carriers into troop transports with a capacity of several thousand troops each.

Without portholes the only source of natural ventilation was through narrow companionways, quite inadequate for the job. With the assistance of Minneapolis-Honeywell Regulator Co., which supplied the heat and ventilation controls, a design for a multiple system was worked out to furnish not only fresh air and heat, but enough of each to provide specific amounts to each troop.

A few of these ships are now in commission, while others are being constructed or converted. Each ship is equipped with Minneapolis-Honeywell pneumatic systems which control heat and ventilation through a multiple fan and carrier arrangement. Each ship has 18 of these systems.

The fan systems, according to Minneapolis-Honeywell engineers, use 100% fresh air which is drawn into the ship. This air is pre-heated, when weather demands, to 60° F. The air is then directed through a controller which automatically discharges the air into ducts where, again automatically, it is maintained at a discharge temperature sufficient to provide the desired heat and ventilation. Engineers stress the point that both air and heat are measured according to the health and comfort requirements of each troop, a plan that takes into consideration every cubic inch of the living area aboard each ship.

Troop and crew space provided

with both fresh air and warmth include the sleeping quarters, the cafeteria, standup-to-table style which has so amazed British seamen, the sickbay or hospital, and other quarters. First World War veterans who were often transported in stifling quarters where seasickness was the rule, and on cattle ships, look upon these new troop liners with a little awe.

A home atmosphere is provided by the new personalized heating and ventilating principles on the portholeless ships. It is possible to have 60° temperatures in some quarters, a temperature considered best for troop transport or higher or lower temperature as conditions demand. This idea is similar to that announced by Minneapolis-Honeywell for post-war apartments, hotels, etc., under personalized temperature control.

Sun Shipbuilding & Drydock Co. engineers hint that the conversion of these ships and the introduction of heat and ventilation controls may revolutionize luxury liner construction after the war, through possible omission of hull portholes and the cost involved in making these ports, their coverings, and various attachments to dog them down in stormy weather.

McClain Distributing Signs For Complete Admiral Line

CHARLOTTE, N. C. — McClain Distributing Co. here, prewar distributor of Admiral radios, will wholesale the complete postwar Admiral line. President of the firm is Enloe McClain, who was district sales manager for Servel, Inc. before he formed the distributorship.

**DRYNESS
UNIFORMITY
EASY BENDING
CLEANLINESS**

all
**You get these qualities in
WOLVERINE COPPER TUBING**

WOLVERINE TUBE DIVISION of CALUMET & HECLA CONSOLIDATED COPPER COMPANY
1411 CENTRAL AVENUE • DETROIT 9, MICHIGAN

VIRGINIA Refrigerants



**TESTED
PURITY
for
SERVICE
SURETY**

"EXTRA DRY ESOTO", "V-METH-1" AND METHYLENE CHLORIDE
AGENTS FOR KINETIC'S "FREON-12"—AND "FREON-22"

VIRGINIA SMELTING CO.

WEST NORFOLK, VIRGINIA

72 Beaver St., New York 5

131 State St., Boston 4

Brown of Philco Sees Room Cooler Sales Up 300% First Postwar Year

Dealers Showing Tremendous Interest Now

PHILADELPHIA—One of the important and fast growing postwar industries is going to be single-room fractional horsepower air conditioners or room coolers, even though only five or six years ago practically nobody knew what they were, declares Harry Boyd Brown, manager of air conditioning for Philco Corp.

WEREN'T UNDERSTOOD

"The fact that very few people understood what a room cooler was, what it did, or how it functioned was probably the chief reason the entire industry sold only 30,000 to 40,000 of these units a year before the war," Mr. Brown believes.

"But the performance, service, and utility of single-room air conditioners have been so outstanding and so apparent to the user, that word-of-mouth advertising within the past few years has done a remarkable educational job insofar as the general public is concerned.

\$60 MILLION A YEAR?

"The news about air conditioners has spread so rapidly that in the first postwar year, three times as many units will be made and sold as ever before, and it is not too radical a prophesy to say that three or four years after the war, annual volume should increase to six or eight times that of 1941. In that event the business might amount to \$60,000,000 a year.

"Before the war, only a few dealers realized the big profit possibilities of this merchandise, but within the last 16 or 18 months, we have been amazed at the number of unsolicited inquiries that have poured in from dealers. They seem to be coming to realize that here is a high-priced unit, selling from \$175 to \$400, which is easily and quickly sold for cash without high-pressure or expensive sales effort and without the need for any trade-in allowance.

THEY'RE 'REPEATERS'

When a dealer sells an air conditioning unit for \$250, he gets payment in full then and there. When he sells a unit for a home and installs it in the master bedroom, he quickly finds he has a customer for four or five units in other rooms. The same

DO YOU DESIRE REPRESENTATION IN MIDWEST?

Firm establishing offices in Dayton to represent manufacturers in Midwest. Personnel have engineering and sales background and intimate knowledge of refrigeration, automotive, aircraft, and other industries. Now is the time to get set for the large post-war markets in this territory. Well financed. Write today. Box No. 1607, Air Conditioning & Refrigeration News.

REFRIGERATION PARTS SUPPLIES EQUIPMENT

AIRO SERVICE Where and When You Want 'Em FAST!

Yes, AIRO SERVICE means fast deliveries to every state in the country. . . gives YOUR Service Shop necessary parts and RUSH JOBS!

"Smart" Servicemen are tying up NOW with Airo Service because the speedy delivery being given by Airo NOW is strong indication of the superior, reliable, split-second service to be anticipated AFTER the War.

"You'll like to Buy from Airo Supply!"

Send NOW for the Airo Victory Catalog, listing Refrigeration parts, tools, and equipment. Use your letterhead, please.

WHOLESALE ONLY
AIRO SUPPLY CO.
Dept. B, 2732 N. Ashland Ave.
Chicago 14, Illinois

Export Restrictions Are Eased Up

WASHINGTON, D. C.—The Foreign Economic Administration has notified exporters of the forthcoming discontinuance of the program license procedure that controls commercial exports to the following areas of the world:

United Kingdom, Australia, Union of South Africa, New Zealand, India, Newfoundland, and most other British Empire areas; the Soviet Union; the Belgian Congo; French possessions such as French Oceania, Madagascar and Reunion; French Cameroons, French Equatorial Africa, French West Indies, and French Guiana; Surinam and the Netherlands West Indies; the Middle East; and Greenland.

Under the program license procedure, releases against the export programs set up jointly by the Foreign Economic Administration and the respective governments were issued for exports to the areas con-

cerned by the foreign purchasing missions.

Beginning Oct. 1, 1944, it will no longer be necessary for exporters to obtain release certificates from foreign purchasing missions. After that date it will only be necessary to file individual export license applications, for all commodities destined to those areas previously under program licensing, directly with the Foreign Economic Administration.

Instead of using release certificate forms for the areas formerly under program licensing, exporters will file their applications on Form 419 for all exports to all areas. Under the new set-up, the Foreign Economic Administration will issue all export licenses for these commodities direct to applicants.

The elimination of program licensing is another step by the Foreign Economic Administration towards the easing and simplifying of wartime foreign trade regulations whenever war conditions warrant. On July 1 the Foreign Economic Administration removed all commodities from the decentralization procedure governing exports to most Latin American countries. This re-

lieved exporters of the necessity of obtaining import recommendations from these countries.

In order to facilitate the change-over from the old to the new procedure, there will be a transition period, which will extend from Sept. 23 to Oct. 1, 1944. Exporters have been notified in Current Export Bulletin No. 188, which was mailed to them recently, that applications for release certificates should not be submitted so as to reach either the foreign purchasing missions or the Foreign Economic Administration during this period, except for those covering lumber.

Any applications received for other than lumber and lumber products from Sept. 23 to Oct. 1 will be returned without action. This is necessary to permit the transfer of balances of accounts, establishment of new records, and to permit other adjustments for the new procedures.

Although release certificates will no longer be issued for exportations to the destinations now covered by program licenses after Sept. 30, those certificates which have not expired by then will remain valid until their regular expiration date.

"FREON" Stimulates Interest in Industrial Postwar Air Conditioning ...in "TIME"



"She wants to know if the Ladies' Aid can hold a picnic in our air conditioned plant."

Silly idea? Not exactly. An air conditioned factory is a pretty comfortable spot. So maybe the girls are smart? Think of the thousands of men and women who work in air conditioned plants. What do they think of air conditioning? They're for it... 100%. They've discovered that clean, fresh air provides better working conditions... protects their health... promotes morale... increases their production. And records prove it.

Today, air conditioning is doing a splendid job... helping American industry set new high levels of production. It's also paving the way for the future. For once peace comes, air con-

ditioning will be found just about everywhere. Millions of people will expect it—not only in industrial plants and offices, but in hotels and restaurants, stores and shops, schools and churches. And thousands of families will want air conditioned homes.

Right now, of course, almost all air conditioning equipment—as well as "Freon" safe refrigerants—is serving war purposes. But soon again "Freon" will be available for use in indoor climate control systems... refrigerators and low-temperature quick-freezers. Kinetic Chemicals, Inc., Tenth & Market Streets, Wilmington 98, Delaware.

FREON safe refrigerants

... used in most refrigerators and air conditioning systems

"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS



"You say the boys don't even stop for lunch since you air conditioned the plant?"

Exaggeration? Well of course it is. But it's a known fact that air conditioning in our war plants really has worked wonders. It has helped get more work done... better... quicker.

That's the story in most air conditioned war plants throughout the country. Records prove it. And thousands of men and women who work in these plants prove another point. Air conditioning makes the big difference. It increases comfort... safeguards health... promotes morale... boosts production.

It's no news that air conditioning is out of the luxury class. In fact, it has become a business asset. War plants with year-round conditioning are just the beginning. People who

have worked in them are going to want air conditioning not only in post-war plants and offices, but in hotels, restaurants, stores, clubs, schools. And thousands of families will want it in their own homes, too.

Today, of course, almost all air conditioning equipment—and the "Freon" safe refrigerants used in it—is going into essential war projects. But soon there will be more "Freon" available to meet current needs. When the war is over, a plentiful supply will be available for new and improved air conditioning systems... quick-freezing units... refrigerators and many other postwar developments. Kinetic Chemicals, Inc., Tenth & Market Streets, Wilmington, Delaware.

FREON safe refrigerants

... used in most refrigerators and air conditioning systems

"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS

FREON

REG. U. S. PAT. OFF.

safe refrigerants

"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS.

HERE ARE two more attention-getting "Freon" advertisements that have just appeared in Time Magazine. Each of these messages has a double purpose—to stimulate postwar thinking among business executives and those concerned with air conditioning and quick-freezing installations, and to point out the advantages of these systems to the general public. In fact, every "Freon" message in "Time" this year points to the future and shows that air conditioning and refrigeration are luxuries no longer... but important business assets. Kinetic Chemicals, Inc., Tenth & Market Streets, Wilmington 98, Delaware.

Miami Valley Firm To Handle Crosley Line

DAYTON, Ohio — Miami Valley Distributing Co. is distributor for The Crosley Corp. in the southwestern part of Ohio, it has been announced by Leonard C. Truesdell, Crosley sales manager.

The Miami Valley Distributing Co. is directed by George H. Deacon, general manager, who has 18 years experience in the appliance business distribution. George E. Schumacher is sales promotion manager.

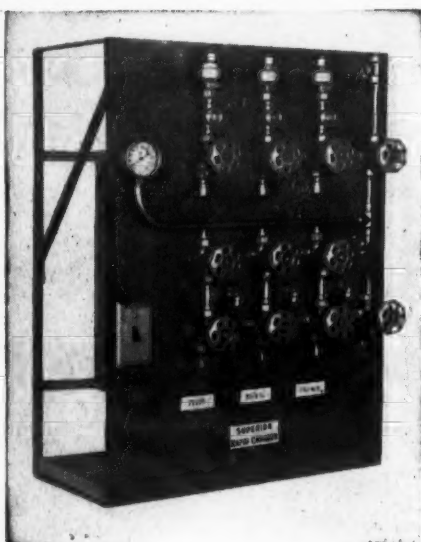
NEW 1944 CATALOG



Write for copy on your letterhead

Washing Machine Parts Catalog will not be loaned in 1944

SERVICE PARTS CO.
2511 Lake St. Melrose Park, Ill.



TYPE 630

TYPE 630—illustrated above, is a complete refrigerant transfer system, with all equipment mounted on a special composition panel.

TYPE 631—illustrated below, is recommended for use where evacuation and discharge, and other facilities provided on Type 630 are not required.

RAPID-CHARGER is the result of careful study of all known refrigerant transfer methods, systems and problems pertaining thereto. It has instantaneous liquid coolers—one for each refrigerant to be transferred—connected in series with a refrigerating circuit, using a thermostatic expansion valve, and a small condensing unit with pressure control.

RAPID-CHARGER is fast—no valuable time lost in filling cylinders—no purging necessary. Refrigerant losses are practically eliminated.

If you haven't a copy of Catalog R2, request one today.

Army Refrigeration Problems

By P. B. Reed

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.



Fur Storage, Use of Variable Speed Units

In warm weather, furs must be protected in some manner from the depredations of the larvae of moths. This may be done chemically but to be effective the treatment must be done by experienced people with special equipment.

Simply hanging the fur garment in a closet or in a box or bag with moth balls is far from adequate. Moreover, furs retain their gloss and texture best in the colder air similar to the natural living conditions of the animals from which they came, and this is just as true of the cheaper grades of furs as of the minks, foxes, and other better pelts.

Humidities around 60% R.H. are best for furs. Low humidities may cause excessive drying of the natural oils and splitting of the hairs of the fur. High humidities may result in the growth of molds. Humidities may be controlled rather easily in connection with refrigeration equipment.

LARVAE, NOT MOTHS, DAMAGE FURS

The moths themselves are harmless as they are vegetarians, but they lay eggs which hatch out into worms (larvae), and it is these worms that eat the hair and even the skins of the furs. Furs may be kept free of moths, eggs, and larvae by keeping them in a room held at about zero, but in practice they are ordinarily held at about 40°.

At 40° the moths, eggs, and larvae are not very active, nor are they entirely inactive. They are subject to cold shock, that is, to sudden temperature changes, so one very successful method is to normally hold the temperature in the fur storage room at about 40° F. and then about every 10 days or two weeks the refrigeration equipment is turned off to allow the temperature to rise to around 70°, and it is allowed to stay at about this temperature for a day or less to favor the hatching out of the eggs into worms.

Then the refrigeration is turned back on, but this time the temperature is run on down to about 18 to 20° and held there for a day, during which the worms are killed by freezing. After this freezing period the temperature is allowed to rise to

about 40° and held there thermostatically until the next 70° propagation-40° killing cycle 10 days or two weeks hence.

The low temperature of 20° is usually manually controlled by means of a switch that short-circuits the thermostat.

TYPICAL FUR STORAGE INSTALLATION

Let us examine the refrigeration loads at 40° and at 20° of a fur storage room 60 feet long, 50 feet wide, and 15 feet high, outside measurements; insulated with 3 inches of sheet cork or the equivalent; plaster inside; 1 inch pine and paper outside, in a larger building in which the normal summer temperature is about 80°.

With 40° inside, the temperature difference is 40° and the heat leakage load is 744,000 B.t.u. per 24 hours. The evaporator temperature will be about 25°—about 15° lower than the air temperature.

In civilian fur storage the heat leakage represents the greater part of the entire load, for most of the furs are in cold storage for the summer only, and there is very little running in and out of the fur room.

Military fur storage installations are used the year around and the service load is apt to be a larger portion of the total load due to more frequent disbursement of the aviation furs.

LOADS AT 40° AND 20°

For a service and product load we will add about 5% of the leakage load making a total load of 781,200 B.t.u. per 24 hours. We would not want our machine to have to operate more than two-thirds of the time, so the capacity of the equipment would have to be at least 49,000 B.t.u. per hour.

At a 25° evaporator temperature (24.6 p.s.i. "Freon-12"), a 5 hp. unit

would have a capacity of 55,000 B.t.u. per hour so it would operate approximately 14¼ hours instead of 16 hours out of the 24 to maintain 40° inside with 80° outside. This 5 hp. unit would have a displacement (total cylinder volume) of approximately 20 cubic feet per minute.

For the killing period when the room is warmed up to 70° for several hours and then pulled down to 20°, the heat leakage at 20° is 50% greater than at 40° (60° temperature difference instead of 40°) or 1,116,000 B.t.u. per 24 hours.

The service and product load would be somewhat greater, perhaps twice as large—75,000 instead of 37,200 B.t.u. per day—so that the total load due to heat leakage, product, and service would be 1,191,000 B.t.u. per 24 hours.

MILITARY REQUIREMENTS DIFFERENT THAN CIVILIAN

In estimating civilian fur storage loads it is customary to ignore the product load, that is, the heat in the furs themselves for they are put in a few at a time, and the additional load per day is negligible.

This is not necessarily true for military fur storage where considerable quantities of warm furs may be put in at one time, and in such cases suitable addition will have to be made to the load and to the capacity of the equipment. As a rule, military fur storage installations are less heavily loaded than civilian installations.

Moreover there is some heat load in the furs when pulling down from 70° to 20° although the furs will not be entirely warmed through to 70°. A condensing unit that has sufficient capacity at the low temperature (20°) to absorb the high heat leakage and service load will have adequate capacity at the higher suction temperatures to provide for the pull-down. The capacity of a condensing unit operating at 25° suction temperature is approximately twice the capacity of that same condensing unit operating at 0° suction temperature, with other conditions equal.

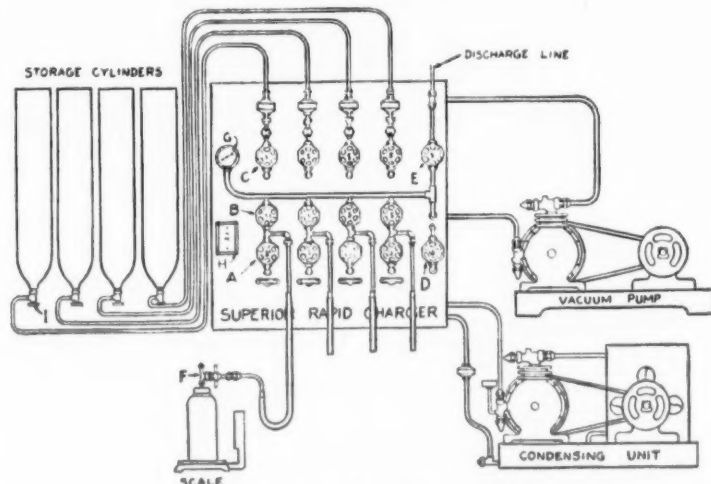
AT 20°, LOAD UP ½; CAPACITY DOWN ¼

So we have a load of 781,200 B.t.u. per 24 hours at 40° and a 5 hp. condensing unit with a capacity of 55,000 B.t.u. which will therefore handle the 781,000 B.t.u. by operating a little more than one-half time.

(Concluded on Page 23, Column 1)

Superior RAPID-CHARGERS

Hi-speed refrigerant transfer systems
five pounds per minute by actual test.



Typical installation of Type 630



TYPE 631

DAVISON'S SILICA GEL SETS THE STANDARD FOR DRYING AGENT PERFORMANCE...NO.

Chemically Inert
...NON-REACTIVE



PROCESSED ESPECIALLY FOR THE DEHYDRATION OF REFRIGERANTS

Davison's Silica Gel will not attack metals or alloys. This advantage, plus the fact that Davison's Silica Gel adsorbs and holds acids that cause corrosion gives you complete freedom from hazards that affect the life and performance of the unit.

Other advantages of Davison's Silica Gel: 1—Acts instantly; 2—Its maximum capacity is unaffected by oil; 3—It will not cake nor powder; 4—It will not channel in the cartridge... maximum pore surface and volume is presented to refrigerant at all times.

Specify Davison's Silica Gel... in bulk for refill and in factory-charged dehydrators... from your jobber.

THE DAVISON CHEMICAL CORPORATION
Progress through Chemistry

Canadian exclusive sales agents for DAVISON'S SILICA GEL:
CANADIAN INDUSTRIES LIMITED, General Chemicals Division

SUPERIOR VALVE & FITTINGS COMPANY
PITTSBURGH — 26 — PENNSYLVANIA

OFFICES IN PRINCIPAL CITIES • WEST COAST STOCK LOS ANGELES (15) • JOBBERS EVERYWHERE

Variable Capacity Condensing Unit Has Application In Fur Storage Job

(Concluded from Page 22, Column 5)

But if we attempt to pull this room down to 20° with this same unit we find that at a 0° evaporator the capacity of our condensing unit has dropped to about one-half or 27,500 B.t.u. per hour so that even if the load were the same, the unit could not handle it even by running 24 hours a day. But the load is not the same. It has gone up to 1,191,000 B.t.u. per 24 hours.

TWICE THE DISPLACEMENT FOR 20° TEMPERATURE AS FOR 40°

By putting on another 5 hp. unit we would have our 55,000 B.t.u. per hour back so that we could handle the increased load in about 21½ hours out of the 24 (1,191,000 ÷ 55,000).

Not only are two condensing units on one evaporator usually a source of a good deal of service trouble, but it is rather expensive to buy a complete, extra 5 hp. unit, especially since it is in use only one day out of 10 or 15, so it is more economical to use a 10 hp. unit having 40 c.f.m. displacement; that at 0° suction has a capacity of about 55,000 B.t.u. per hour available for the one day freezing period.

However, if we use this unit at full capacity at 25° suction for the normal storage, it would have an hourly capacity of 110,000 B.t.u. per hour which would result in an out-of-balance condition with the load and the evaporator causing short cycling, wide temperature fluctuation and too-low humidities.

VARIABLE CAPACITY CONDENSING UNIT

So if we need some method of cutting the capacity approximately in half, i.e. to 55,000 B.t.u. per hour for the 40° temperature. The most obvious method is to cut the speed in half. This could be done in several ways including a gear-box or a two speed motor, and it is the latter method that is frequently used.

It requires, of course, an especially wound motor so that for a two phase or three phase motor by merely throwing a double throw switch, the coil connections inside the motor are changed to make it an 8-pole motor operating at 875 r.p.m. instead of a 4 pole motor operating

at 1,750 r.p.m. The speed of a D.C. motor can also be changed electrically.

Special motors are required for A.C. single phase, and these are not often used because of the high cost.

There are other ways of changing the capacity of a condensing unit to adjust them to variable load conditions. These usually take the form of by-passing the discharge of one or more cylinders back to the suction, cutting out one or more cylinders, or causing one or more cylinders not to pump. These methods, some of which are very efficient and quite ingenious, will be described in future articles.

McDougall Named Alco Southeast Field Engineer

ST. LOUIS—Ben M. McDougall has recently been appointed field engineer for the southeastern territory of Alco Valve Co., with headquarters at Atlanta, Ga. This territory includes Georgia, Florida, South Carolina, Alabama, North Carolina, Mississippi, Louisiana, and east Tennessee.

Mr. McDougall became associated with Alco in 1940 when, with headquarters in New Orleans, he served the refrigeration industry in several southern states as manufacturer's agent.

He later moved to Birmingham, but early in 1943 this office was closed because of war conditions. Mr. McDougall then came to St. Louis, where he has been doing test engineering work in Alco's refrigeration laboratory.

Alco Valve Co.'s Atlanta address is 423 C. & S. National Bank Building.

Walter Warren Opens Los Angeles Firm

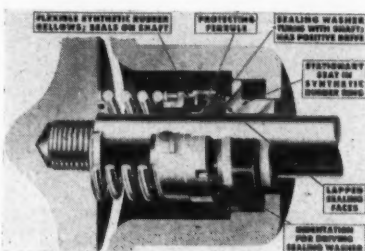
LOS ANGELES—Beverly Refrigeration & Appliance is the firm name under which Walter J. Warren has published a certificate that he is conducting business at 138 North Larchmont Blvd., Los Angeles, Calif.

Crane Packing Co.'s Seal Uses Bellows Of Synthetic Rubber

CHICAGO — A new mechanical seal incorporating a flexible synthetic rubber bellows has been introduced by the Crane Packing Co. for use on refrigeration compressors, centrifugal pumps, speed reducers, rotary pumps, and other rotary sealing applications.

Known as the "John Crane shaft seal," the unit is furnished as a complete assembly, and is claimed to be easy to install. It has three major parts: (1) a flexible synthetic rubber bellows, one end of which grips and seals along the shaft; (2) a stationary floating seat, held in a synthetic rubber sealing ring; and (3) a positive-drive sealing washer which turns with the shaft and is held by spring pressure against the stationary seat.

Flexing head of the bellows, which is said to offer no resistance to the



spring, permits the sealing washer to remain in contact with the seat as the sealing faces wear, and provides automatic compensation for shaft vibration and end-play, it is claimed.

A loose-fitting ferrule guides the flexing bellows head and prevents the synthetic rubber from contacting the shaft. The Crane company stresses the absence of compression packing in the design, which, it claims, can freeze to the shaft.

Synthetic rubber employed has maximum resistance to oil, refrigerants, water, anti-freeze, and hydrocarbons, the company says. Complete information is available from the Crane Packing Co., 1831 Cuyler Ave., Chicago 13.



NIBCO WROT Fittings are formed in one step from straight copper tubing. They are strong, light in weight and dense in structure . . . impervious to gases. Because every fitting is perfectly formed and absolutely "round and square," they are easier to use in production. Laboratory Control and individual plug testing assure close tolerances. You can eliminate service troubles by using vibration-proof and corrosion-proof NIBCO WROT Fittings. Write for complete catalog.



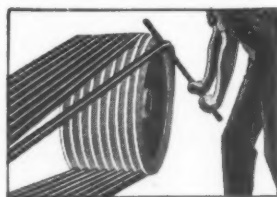
NORTHERN INDIANA BRASS CO.
ELKHART, INDIANA
VALVES AND FITTINGS SINCE 1904



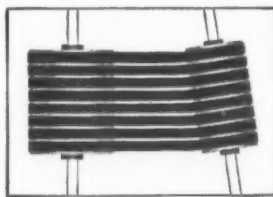
How to Lengthen V-Belt Life—

ON ALL REFRIGERATION AND AIR-CONDITIONING SYSTEMS

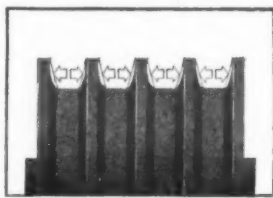
You never need to "baby" your tough, firm-gripping Dayton V-Belts, but if you will give them just reasonable care you can add months and years to their remarkably long lives. With the vast increase in the use of Dayton V-Belt Drives for compressors and fans in commercial, industrial and military service, proper maintenance becomes more than ever a patriotic duty. Here are 9 helpful hints:



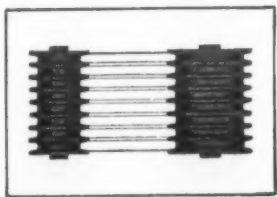
1. When installing, don't pry V-Belts over pulley grooves—instead, slide motor forward and drop belts over the pulleys. Then move motor back until the proper tension is obtained.



4. Check both shafts for parallel alignment so each belt can pull its share of the load.



2. When the proper tension is reached, belts have "live springy vibration." When too much slack exists, belts feel dead when struck by hand.

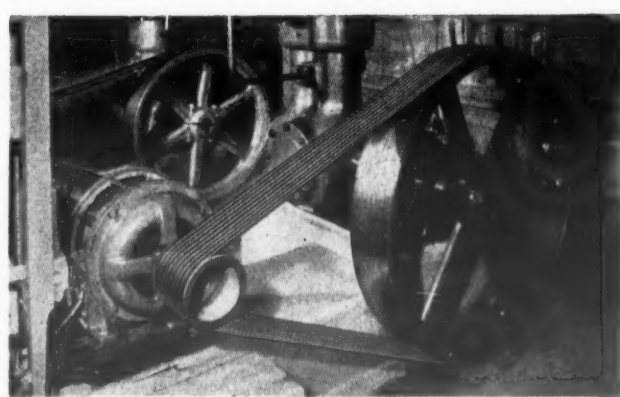


3. Check and line up pulleys, groove for groove, and in parallel. Misalignment wears both belts and pulley grooves excessively.

5. Check and replace worn pulleys—they wear out belts prematurely.

6. Don't replace a part of a set of V-Belts with new belts as the new belts will hog the load and wear out quickly. Instead, replace the whole set and conserve any good belts from the old set for spares.

7. Don't let oil leak on V-Belts. Where an oily condition prevails, use the Dayton Oil-proof V-Belt.



8. Don't hang V-Belts on nails, hooks or across boards or other objects which might cause them to bend sharply.

9. Belts not in use should be stored in a cool, dry place away from direct sunlight and

high temperatures.

You are invited to call on your nearest Dayton Distributor for helpful suggestions or service. He will gladly help you with your V-Belt problems.

THE DAYTON RUBBER MFG. CO., DAYTON 1, OHIO
Co-Operators of a Government Synthetic Rubber Plant
DAYTON RUBBER EXPORT CORPORATION
38 Pearl Street, New York, N. Y., U. S. A. Cable Address: WIDBLOCO

V-Belts by

WRITE FOR
FREE WALL CHART

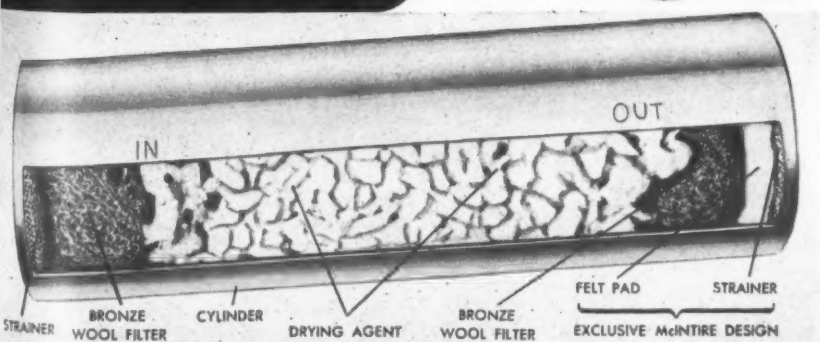
**Dayton
Rubber**

The Mark of Technical Excellence in Synthetic Rubber

MAINTAIN VICTORY SPEEDS — CONSERVE YOUR TIRES

3-WAY PROTECTION FOR EVERY INSTALLATION!

NO MOISTURE
NO SEDIMENT
NO ACID



ONE DFN cartridge does THREE jobs. It adsorbs moisture. It filters sediment. It neutralizes acids. And it's the ONLY unit that offers you this triple protection.

The uniformly packed, dust-free, re-activated drying agent removes all dangerous moisture. The packing is mechanical, insuring correct quantity and density to each cartridge to permit free flow of refrigerant up to rated capacity. An exclusive anti-sediment assembly covers the COMPLETE AREA of the outlet which filters the refrigerant through multiple layers of bronze wool, felt and wire mesh. Positive filtering action is

secured—the smallest particles being retained in the cartridge.

When a DFN cartridge's long service life is ended, it is easily removed from the DFN shell and a new cartridge put in its place. No time consumed refilling with dehydrant on the job—no danger of loose packing. Hermetic sealing of the cartridge container insures a complete drying unit WHEN WANTED. Ask your distributor for this unique, triple-action DFN unit.

**McINTIRE CONNECTOR COMPANY
NEWARK 5 NEW JERSEY**

Only the

**DFN
SYSTEM**

DEHYDRATES
FILTERS
NEUTRALIZES

DEHYDRATORS • STRAINERS

FILTERS • NEUTRALIZERS

Frigidaire Wartime Booklets Go 'Round the World

DAYTON, Ohio — Frigidaire has spanned the world with its wide distribution of booklets published as part of the organization's Wartime Service Program. The booklets, "Wartime Suggestions" and "101 Refrigerator Helps," both based on food conservation and refrigeration care have had a circulation of over 11 million during the past 18 months.

The interesting part of the circulation story has been the great number of requests from foreign countries.

They have come from 84 cities and towns in 31 different lands.

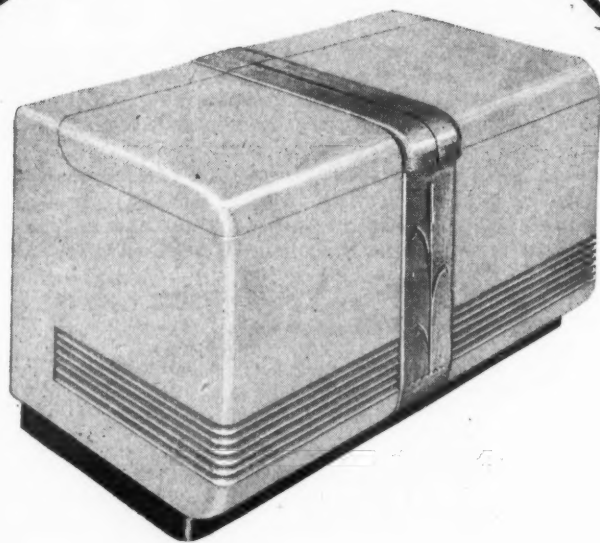
The requests also illustrated the popularity of American magazines in foreign countries. The majority of the requests were made by a coupon clipped from advertisements in a wide range of popular weeklies and periodicals. Many of the letters accompanying the coupons amply illustrated the friendliness between the people of other lands and the United States, say Frigidaire officials.

Your refrigeration parts and supply house in Central New York and Northern Pennsylvania

TED GLOU

CENTRAL SERVICE SUPPLY CO.

516-18-20 Erie Blvd. E., Syracuse, N. Y. Phone 5-4000
209 Jefferson Ave., Scranton, Pa. Phone 3-4000



In the
"Post-War Plans"
of many
Farm Families--

The BEN-HUR Farm Locker Plant

Talk to any farmer about a farm locker plant and his first comment will be, "wish we had it now." And he'll follow with the promise that food freezing and frozen storage is the FIRST thing he's going to add after the war.

For most farmers already know the benefits of owning a BEN-HUR FARM LOCKER PLANT... the advantages of freezing and storing farm-grown vegetables, meat, poultry for delicious meal variety weeks and months later... the economy and

savings in food costs... the satisfaction of preserving the finest of their own produce... the time saved in avoiding shopping trips to town.

This is evidence of your future market for new BEN-HUR FARM LOCKER PLANTS—a volume market ready just as soon as they can be produced.

Let us put your name on the list to receive complete data and sales information on BEN-HUR FARM LOCKER PLANTS, when this data can be released.

Today... back our fighting men with more war bonds



ARMY-NAVY "E"
Awarded Ben-Hur
for outstanding
achievement in
War Production.

BEN-HUR MANUFACTURING CO.
634 EAST KEEFE AVE. - MILWAUKEE 12, WISCONSIN

Remember...

BEN-HUR FARM LOCKER PLANTS

Only 50,000 Home Freezers Sold Prewar; 500,000 a Year Might Fail Demand Now

Task Committee Report on Home Freezers

Prepared for the War Production Board in July, 1944, by members of the Task Committee.

Description

The Home Freezer is a self-contained refrigerated cabinet delivered and put in place in the home without disassembly. The refrigerating unit may be within the cabinet structure or in a separate compartment attached to it, varying with the manufacturer.

Function

The home freezer as such must freeze as well as hold the food it is called upon to preserve, and therefore maintain temperatures of 0° F. or lower. As a contributor to wartime economy, it saves the labor called for by commercial food processing and, almost equally important, food transportation facilities. The perishability of food makes it the most costly item to transport today.

Avoidable food wastage represents the largest and most economical single food source available to us, according to a War Food Administration brochure, "Discussion Guide of Food Conservation for Use by Women's Groups," published in November, 1943. The Task Committee's report believes the home freezer to be a major factor in reducing this 20%-30% annual loss.

A cross-sectional survey by the magazine "The American Home" asked this question of 2,000 of its subscribers: "Assuming the following items were now available to the consumer, which would you buy within the next year?"

The following results were tabulated:

| | |
|----------------------------|-----|
| Automobiles | 39% |
| Radios & phonographs | 30% |
| Washing machines | 29% |
| Home freezers | 27% |
| Vacuum cleaners | 22% |
| Ranges | 17% |

Surveys along similar lines by other publications and service agencies across the country have brought up these figures:

90% of the Chicago Insulation Corp.'s 25,000 customers want home freezers when available.

75% of the farm families interviewed by the publication "The Farmer" are interested in buying home freezers.

57% of the people interviewed by the Cleveland Electric Illuminating Co. want home freezers when available.

A survey of home freezer owners by one manufacturer to determine the source of the foods going into their freezers reported the following averages:

| | |
|--|-----|
| Frozen foods commercially purchased | 20% |
| Foods purchased from local stores or farmers | 30% |
| Foods grown in their own farms or gardens | 50% |

Estimates quoted in the report show that where 20 million lbs. of food were frozen commercially in 1936, that number has risen to 200 million lbs. in 1943.

The rate at which home freezer production has lagged is pointed up by the Task Committee's report of 50,000 home freezers being the total sales reached by April, 1944, of 100,000 ice cream cabinets now being used as frozen food storage units, plus perhaps 5,000 more that have been built up out of used refrigeration equipment.

Further estimates tag 90% of these as obsolete at the time of installation, according to peacetime efficiency standards. A program of 125,000 home freezers per quarter, 500,000 a year, the Committee states, would not meet the present immediate demand.

The immediate replacement market is estimated at a figure between 75,000 and 100,000 home freezers. Because they are a new product in the refrigeration field, there is no prewar scale for comparison, but given the same advertising and promotional presentation as that of other major household appliances, the Committee believes that the dollar volume of home freezers will compare favorably with the most active products in the field.

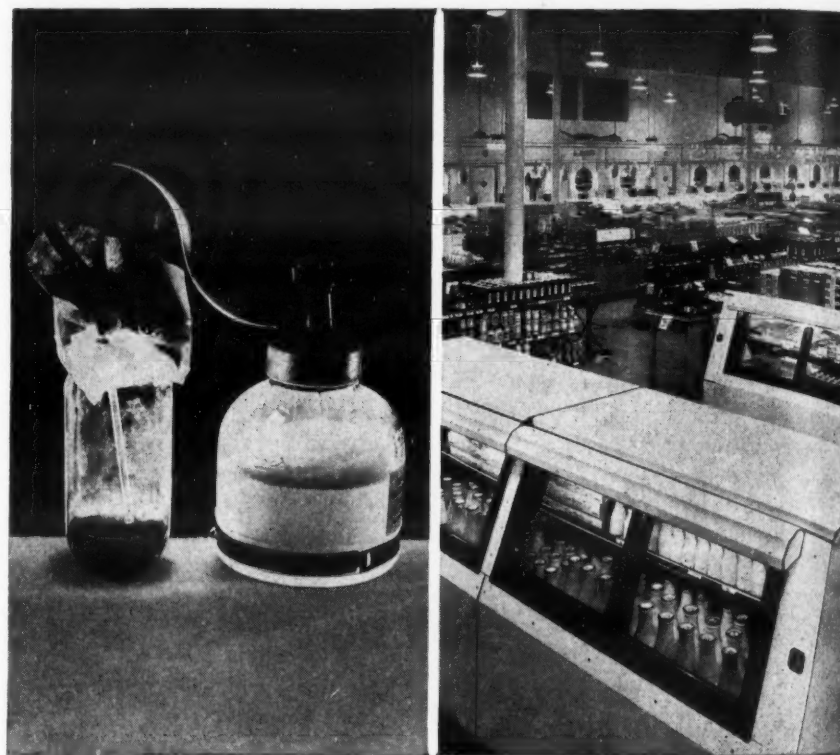
At the request of the War Production Board, task committees from The Air Conditioning and Commercial Refrigeration Industry Advisory Committee and The Commercial Refrigerator Industry Advisory Committee submitted reports describing the kind of products produced by various segments of the industry, the number of units produced in the past, and the present number of units needed to provide essential replacements.

These task committee reports present what is probably the most authentic picture ever given of the past sales records of various industry products, the "life expectancy" of the items, and the replacement demand. With the permission of WPB officials, AIR CONDITIONING & REFRIGERATION NEWS is publishing a digest of the task committee reports.

Part of the digested reports appear in this issue, others will be published in a later issue.

THE SYMBOL OF
Modern REFRIGERATION CONTROL

MODERNIZE WITH
POLARTRON Pressure CONTROL
FOR "FROST FREE" CONSTANT COLD
MINNEAPOLIS - HONEYWELL REGULATOR CO.



What has blood plasma to do with your food supply?

They both are in the fight for freedom! Blood plasma is worthless unless it is kept at a low, controlled temperature from the time it is drawn from a donor's veins—processed at a laboratory—transported—and held to the period immediately preceding its life-saving injection.

The men, who are entrusted with the responsibility of producing and protecting our food supply, know the vast amount of annual food wastage caused by improper or insufficient refrigeration. They know that the health of both civilians and service men depends upon wholesome food... food protected against spoilage and bacteria by proper refrigeration. And they know that a

dependable food supply makes possible increased blood donations.

Brunner condensing units and refrigeration equipment are reliably preserving vital blood plasma and perishable foods. Their reliability and efficiency have been proved under the most severe war conditions. Their dependability is a valuable asset to those responsible for the preservation of our food supply whether in large quantities or small.

When confronted with any refrigeration problem, Brunner engineers, experts in the application of all types of refrigeration, will be glad to answer your questions. Naturally, there is no obligation.

BRUNNER MANUFACTURING COMPANY
UTICA, NEW YORK, U. S. A.



160,000 Ice Cream Cabinets 'Diverted' For Use as Frozen Food Freezers

Task Committee Report on Ice Cream Cabinets

Prepared for the War Production Board in August, 1944, by Paul Brennan, Harold L. Schaefer, and Edward R. Legg.

Description

"Mechanical ice cream cabinets are heavily insulated boxes constructed of steel and other substances, and are designed primarily for the refrigerated storage of bulk and packaged ice cream at approximately 0° F. by means of cooling coils and condensing units, either remote or self-contained," states the report.

Function

"They are used principally in retail stores, hotels, restaurants, drug stores, hospitals, and other institutions, as well as military establishments."

A new use for ice cream cabinets has developed in recent years, moreover. They are employed extensively to store frozen foods in retail estab-

lishments. Likewise, 100,000 cabinets have been "diverted" from ice cream channels to serve as home freezers. Some have also found use as storage cabinets for blood plasma.

"Regardless of urgency, ice cream cabinets available for replacement purposes are practically nil—few, if any in the hands of cabinet manufacturers or ice cream manufacturers."

"Cabinets installed in military establishments while relatively few in number are said to be in very poor condition because of hard usage; service requirements increasing."

"In order to overcome the natural obsolescence factor and severe wartime usage, ice cream manufacturers have done unusual and in many cases expensive repair service on existing cabinets in retail stores in order to keep them in operating condition."

"Reports indicate that thousands of replacements would be made immediately if new cabinets, especially those equipped with sealed units, were available. Ice cream and frosted foods are highly perishable. To avoid complete spoilage prompt mechanical service is absolutely essential. This condition is becoming more acute as service manpower lessens and increased service is required by aging cabinets."

"Similar conditions prevail where cabinets are being used as home freezers or frosted food storage cabinets in retail stores."

Number of Ice Cream Cabinets in Use

| | |
|--|----------------|
| Retail stores (for ice cream storage) | 440,000 |
| Retail stores (for frosted food storage) | 60,000* |
| Domestic use as home freezers | 100,000 |
| Total | 600,000 |

*Total amount of ice cream cabinet space being used for the storage of frosted foods is estimated to be equivalent to 60,000 cabinets.

Value of Ice Cream Handled by 440,000* Cabinets in 1943

| | |
|---|---------------|
| Total gallons | 460,000,000 |
| Gallons through 120,000 fountains (cooler boxes only) at 1,000 gallons per fountain | 120,000,000 |
| Balance through 440,000 cabinets | 340,000,000 |
| Wholesale billing at \$1.10 per gallon | \$374,000,000 |

"It would be difficult if not impossible to estimate the value of frosted foods in the 60,000 cabinets used for this purpose, and definitely impossible to estimate the value of foods preserved in the 100,000 home freezers," declares the Task Committee.

Average Age of Cabinets Now in Use

| | |
|----------------------------------|---------|
| Cabinets | |
| 6 years average age | 400,000 |
| 10 to 12 years average age | 200,000 |

Replacement Requirements

| | |
|---|---------|
| Obsolete cabinets in use (considered obsolete because of age and the fact that they are equipped with open-type condensing units) | 350,000 |
| Minimum replacement requirements for 12 months | 57,143 |
| (By quarters) | 14,286 |

Total Production in 1940*

Dispensing ice cream cabinets, including coin-operated and hardening cabinets 71,131

*Taken from the Bureau of Census report.

List of Manufacturers at the Time Production Was Prohibited or Restricted

Frigidaire Div., General Motors Corp., Dayton, Ohio.
Nash-Kelvinator Corp., Detroit.
Anheuser-Busch, St. Louis.
C. Nelson Mfg. Co., St. Louis.
Schaefer, Inc., Minneapolis, Minn.
Savage Arms Corp., Utica, N. Y.
Liquid Carbonic Corp., Chicago.
Grand Rapids Cabinet Co., Grand Rapids, Mich.
Weber Showcase & Fixture Co., Los Angeles.
Stangard-Dickerson, Newark, N. J.
Quaker Cabinet Co., Quakertown, Pa.
Ace Cabinet Co., New York City.
Miller Mfg. Co., Cambridge City, Ind.
Westinghouse Electric & Mfg. Co., Springfield, Mass.
American Radiator Co., New York City.
Bastian-Blessing Co., Chicago.
Kold-Hold Mfg. Co., Lansing, Mich.
N. H. Ackerman Co., Mansfield, O.

K-15

MAGNETIC PILOTED PISTON VALVE

GENERAL CONTROL'S K-15, two-wire, current failure, is a high pressure valve handling large capacities with minimum pressure drop. Main valve held open electrically minimizes pressure loss. Packless, available normally closed. Operates on a wide variety of fluids and gases.



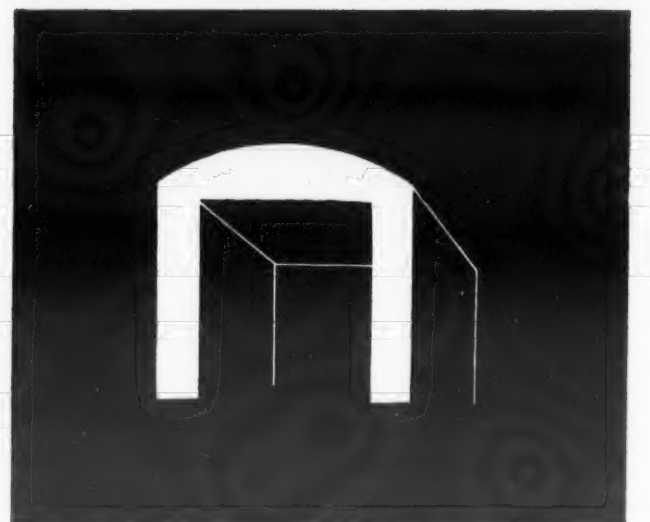
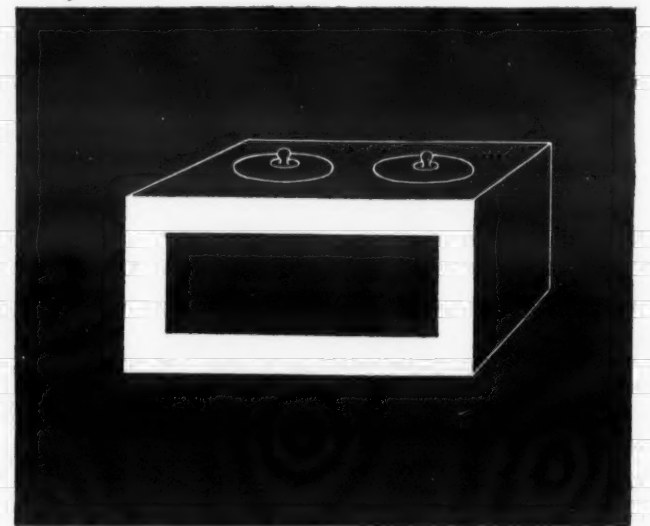
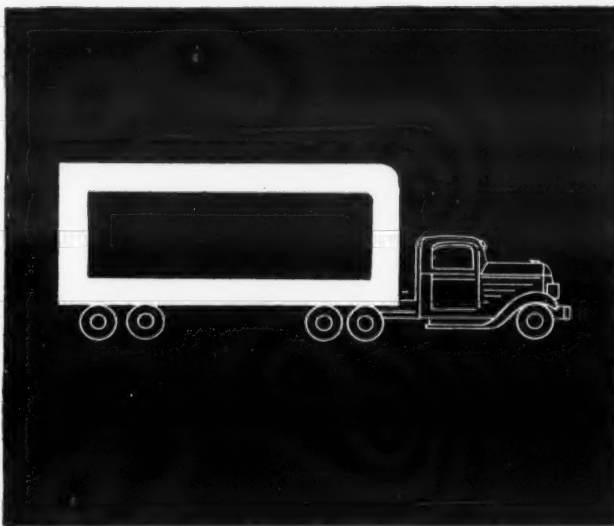
Write for Catalog 52.

GENERAL
801 ALLEN AVENUE
GLENDALE 1, CALIF.



CONTROLS
Branches: Boston • New York • Philadelphia
Cleveland • Detroit • Chicago • Dallas
Denver • San Francisco

Wartime Manufacturers of Electro-Magnetic and Temperature Controls for Aircraft
Peacetime Producers of Automatic Pressure, Temperature, and Flow Controls.



Q. How thick should insulation be?

A. Two-thirds to half as thick if you use SANTOCEL!

It's a FACT... Santocel is so much more efficient than any other porous insulation known that you can cut the thickness of your insulation by 30% to 50% without any loss in efficiency!

This means more usable space in home refrigerators and freezers, larger capacity in retail store cabinets, less "dead" space and larger pay loads in refrigerated trucks.

How is this possible?

Because Santocel has a lower heat conductivity than any other porous insulation known—even lower, in fact, than the theoretical ideal of "still" air.

A new form of silica known technically as silica aerogel, Santocel owes its unprecedented insulating efficiency to its unique cellular structure. Actually it is 90% air, trapped in spaces about one-millionth of an inch in diameter by walls one ten-millionth of an inch thick. As a result, the molecules of

air may travel with the same rapidity as in "free air," but the distance they travel between collisions is substantially shortened—with material reductions in heat conductivity.

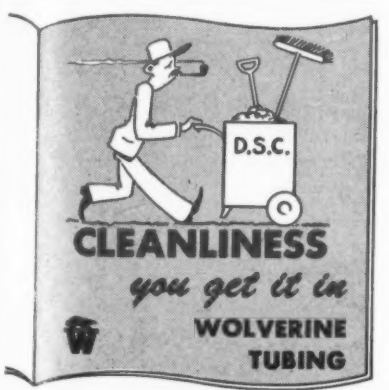
No other insulation achieves this result.

For full details and samples in applying Santocel to your particular wartime heat insulating problems, inquire: MONSANTO CHEMICAL COMPANY, Merrimac Division, Everett Station, Boston 49, Massachusetts.



QUICK FACTS ON SANTOCEL

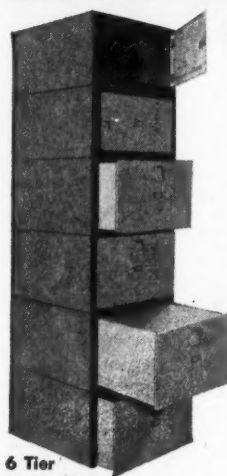
- 1. What is Santocel?** Santocel, discovered before the war, is a form of silica known technically as silica aerogel.
- 2. Insulating value:** The thermal conductivity of Santocel is lower than that of any other material or methods of insulation employed except a highly evacuated, silvered-surface space.
- 3. Density:** Although low for a free flowing powder, Santocel's density is about equal to that of other loose fill insulators and is higher than some bat types and the foil types.
- 4. Application:** Santocel can be applied by building a retaining jacket about the object to be insulated, usually of lightweight sheet metal, and filling the intervening space. Being free flowing, it can be easily applied to such a construction.
- 5. Settling:** Santocel settles to a stable density about as rapidly as other fill types.
- 6. Moisture sorption:** Like all commonly used insulators, Santocel will not pick up significant quantities of water from the air. Practical tests have also shown that, when Santocel is applied to objects substantially below room temperature, no significant amounts of water accumulate through condensation.
- 7. Safety:** Although Santocel is a silica, to the best of Monsanto's knowledge, based on unpublished work by the U. S. Public Health Department, it is not silicotic because of its highly unique structure. A mask is recommended for the comfort of handlers, however, since it is a light powder and therefore dusty.



The Best Food Lockers are cheapest in the end

• The lockers you buy now must stand up for years, be easy to keep sanitary, and stay inviting in appearance. If they don't, you're in for a loss in heavy maintenance and early replacement. When you invest in Safe-Way All-Steel Food Lockers you get the "World's Finest" . . . extra long life, utmost sanitation, smart styling, yet economical in price.

SAFE-WAY LOCKERS



6 Tier
Locker Unit
(4 Drawers)
ORDER TODAY!

protect your plant investment

- Quality of materials, workmanship guaranteed.
- Heavy steel construction; rigidly reinforced.
- Quick, easy assembly and installation.
- Smart, modern, streamlined appearance.
- "Sno-White" baked enamel drawers and doorfronts.
- Smooth, easy-rolling removable drawers.
- Easy to keep spotless inside and out.
- PERMATIZED . . . Special rustproofing of the steel before enameling prevents hidden rust.

See our display at the National Frozen Food Locker Assn. convention, Columbus, Ohio—Sept. 25-27. Booth Nos. 47 & 48

Member of the Frozen Food Locker Manufacturers & Suppliers Ass'n

SAFE-WAY
FOOD LOCKER COMPANY
175 W. Jackson Blvd., Chicago 4, Ill.

85,500 Commercial Food Cases Needed Within Year For Urgent Requirements

Task Committee Report on Refrigerated Display Cases, Reach-in Refrigerators, and Walk-in Coolers

Prepared for the War Production Board on Aug. 1, 1944, by J. H. Coolidge, W. J. Stelpflug, C. V. Hill, Jr., W. T. McCall, and E. L. Stultz.

REFRIGERATED DISPLAY CASES

Description

A typical refrigerated display case, as the name implies, is used by food retailers to display foods. The front of the upper section is enclosed in glass in order that the contents arranged on the interior shelves may be readily visible to the customer. Sizes of typical display cases are usually designated by length, 6, 8, 10, and 12-ft. lengths being the standard models. There are several types of refrigerated display cases, designed for retailing of various types of food. These are usually referred to as follows:

Double Duty Display Case: Used chiefly for meats, this type case is refrigerated in both the upper display portion and the lower section, the latter serving as storage space.

Fresh Fish or Poultry Case: Similar to the meat display case.

Dairy Case: This is a rather tall case, usually fitted with three shelves to display dairy products and perhaps lunch meats.

Delicatessen Display Case: Fitted with shelves and pans for bulk items,

this case resembles the meat display case in appearance.

Vegetable Case: This is a comparatively recent development. Shelves and wire baskets keep produce under refrigeration. It is made in "open" and "self-service" models of various lengths as well as in conventional units.

Function

"Refrigerated display cases are designed to provide the food retailer with proper refrigeration for his perishable products, as well as to display them," states the report of the Task Committee. "The display feature in no way affects the fixture's ability to keep its contents constantly safe from loss and spoilage. . . . In addition to conserving food by preventing spoilage, which is most likely to occur at this most critical point in the distribution cycle, the display case saves manpower.

"With this or a similar refrigerated fixture, meats may be cut up beforehand and arranged on the shelves in the case in advance of the buying rush each day. Also, as a further means of conserving labor, the food commodities to be dispensed from the display case may be pre-packaged, weighed, and priced. Manpower is the retail food merchant's most pressing problem today.

"The display case is but one of a variety of specialized refrigerated fixtures employed at the point of final sale in the food distribution cycle, and known as 'commercial refrigerators.' The primary function of the display case, as with other commercial refrigerators, is to preserve the retailer's stock of perishable foods from the time he receives them until delivered to the consumer," continues the Task Committee statement.

"It has the second function of effectively displaying the stock so that the shopper may make a quick selection. To the small food merchant particularly, the many thousands of which make up the great bulk of our retail food distribution system, the display case is one of the most valuable elements of his operations."

REACH-IN REFRIGERATORS

Description

Produced in a variety of sizes and capacities, ranging from 16 cu. ft. to more than 100 cu. ft., the reach-in refrigerator is widely used by food purveyors. The unit is equipped with two or more doors permitting the owner to "reach in" to obtain or store foods and food ingredients. Some models employ glazed doors, but the primary purpose of this type

unit is to store food rather than display it.

Construction is comparable to that of a display case, with heavy insulation, steel exterior, and interior lining, affording complete protection under all conditions.

Function

The reach-in refrigerator often supplements the display case in the retail food market for storing any of a variety of perishable foods. A special type of reach-in embodying display is often used as a "self-service" fixture, although it is sometimes designated as a "wall refrigerator" or "wall-type display case."

"Still another style of reach-in refrigerator is extensively used by retail bakers for processing dough mixes and preserving the highly perishable ingredients going into bakery foods," declares the Task Committee. "It is known as a 'dough retarder' because of its ability to retard fermentation and bacterial action so that the mixture need be baked only as required, thus adding to the quality and freshness of the finished product.

"In addition to its widespread use in food stores, the reach-in refrigerator also is extensively utilized for refrigerated storage purposes in eating establishments of all kinds; in hospitals, for the dietary kitchen, the storage of blood plasma, serums, etc., in fact in all institutions where perishable foods are served or dispensed in quantity. It is one of the most popular types of commercial refrigerators purchased by the Armed Services, and many thousands are today helping to feed the millions of men in uniform."

WALK-IN COOLERS

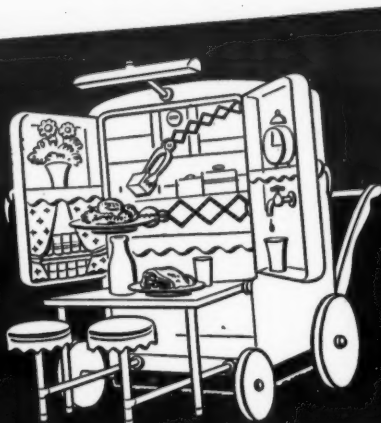
Description

"The walk-in refrigerator is the largest form of commercial refrigerator," states the report. "Also known as 'portable cooling room' or simply 'cooler,' it owes its most commonly used designation to the fact that one or more full-size entrance doors give the operator access to the interior; i.e., he 'walks in.'"

"This type of refrigerated storage facility should not be confused with the built-in cooling room, constructed on the user's premises and becoming a permanent part of the structure. Reference to walk-in coolers in this report applies to the factory-built product, shipped to the user flat or knocked down, and erected by bolting together.

"Walk-in coolers are normally constructed with a wood interior, enclosed at one or more faces with a sheet metal cladding, finished in porcelain enamel or other durable coating. Some are of all-steel construction. Actually a complete cold (Concluded on Page 27, Column 1)

Designers may
disagree about
"FANCY
FEATURES"



...but they all know that
any **REFRIGERATOR**
MUST HAVE GOOD INSULATION

Yes, insulation is a vital part of any refrigerator. Much of the refrigerator's food-keeping efficiency, and certainly a great deal of its operating economy, are dependent upon insulation . . . good insulation.

Naturally, high thermal insulating qualities are the first requisite of a satisfactory insulating material. But many other qualities are also needed if it is to retain its insulating efficiency over a long period of time.

What it takes!

Fiberglas* PF (Pre-Formed) Insulation . . . long, fine, resilient glass fibers treated with a binding agent, compressed and "cured" to form insulating sheets of various thicknesses, densities and degrees of flexibility . . . provides all of the necessary qualities.

In thermal efficiency, it has conductivity of .25 to .30 (depending upon the density) at 70° F. mean temperature. This high resistance to heat flow, combined with almost

negligible heat capacity permits close control of temperatures.

And Fiberglas—being inorganic—is highly moisture-resistant, picks up less than 1% by weight under high humidity conditions—dries out without harm . . . It is odorless and does not pick up odors in service . . . provides no sustenance for vermin. It will not corrode—nor is it corrosive to aluminum or steel in the presence of moisture. And Fiberglas has mechanical strength—doesn't settle, "dust" or disintegrate under vibration.

Other important advantages

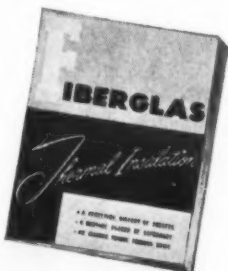
But there are still other reasons why Fiberglas PF has become far and away the leading insulation in the refrigerator field. It is easily cut to specifications—and so light in weight that a man can carry a complete set of pieces required for the average size household refrigerator. This light

weight facilitates handling on production lines—contributes substantial freight savings.

Wide consumer acceptance—perhaps we should say "preference"—has likewise made Fiberglas Insulation a favorite with both manufacturers and retailers. And this grows in strength with each passing year, as might be expected with such a product, backed by aggressive promotion and advertising.

Send for FREE booklet

If you are thinking about insulation for your postwar refrigerator, send for a copy of the new "Fiberglas Thermal Insulation" booklet. It's filled with up-to-date facts that you may find most helpful in your planning. Write Owens-Corning Fiberglas Corp., 1848 Nicholas Building, Toledo 1, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.



FIBERGLAS

*T. M. Reg. U. S. Pat. Off.

THERMAL
INSULATION

WEBER first

IN PEACE . . . WAR . . . POST-WAR

Commercial Refrigeration,
Soda Fountains, Ice Cream
and Frosted Food Cabinets

Investigate the country's

most complete line of
commercial refrigerators,
soda fountains and Ice Cream
and Frosted Food Cabinets
before you make any post-war
sales plans.

PLAN NOW TO SELL
THE WEBER LINE INSTEAD
OF SELLING AGAINST IT
Write today for data concerning the details of Weber distributorships. This franchise will make real money for those concerns who can qualify.

WEBER SHOWCASE &
FIXTURE CO. INC.

5700 AVALON BOULEVARD • LOS ANGELES, CALIFORNIA

Production of Commercial Cases Estimated at 75,000 In 1940

(Concluded from Page 26, Column 5)

storage room, each is equipped with one or more entrance doors, windows, rails, and hooks on the interior to hang meat; shelves and racks to store the other products to be refrigerated."

Walk-in coolers are made in a variety of sizes, with the height conforming to that of the structure in which the cooler is to be installed. Outside dimensions of standard sizes are: 8 by 6 ft., 8 by 8 ft., 8 by 10 ft., 10 by 10 ft., 8 by 12 ft., and 10 by 12 ft. Capacity of the 8 by 10-ft. cooler is approximately 500 cu. ft.

Function

"Walk-in coolers provide the grocer or other food purveyor with the means of storing perishables such as meat, poultry, vegetables, etc., in large quantities and for long periods of time," declares the Task Committee. "The cooler is often employed as a 'feeder' for the display cases or other refrigerated fixtures from which the merchant dispenses his stock to the consumer.

"In other food establishments, the walk-in may be the sole refrigerated facility. Because of its size and large capacity, this commercial refrigerator gives to the user the same benefits that the food processor or wholesaler derives from the cold storage warehouse.

Statistics

"The more than a half million retail food stores in America, plus the several hundred thousand eating establishments, institutions, etc., own a total of 1,085,000 display cases, reach-in refrigerators, and walk-in coolers, as shown by the report of the General Task Committee dated Nov. 26, 1943," states the report.

The normal life of these refrigerated fixtures is 10 years, so approximately 10% of existing equipment is normally replaced each year. However, since May 15, 1942, when Limitation Order L-38 suspended the production of display cases and related products, manufacturers have been permitted to finish up their inventories of raw materials and fabricated parts. According to esti-

mates of the Task Committee, the resulting production amounted to 70% of a normal year's output.

This, plus operations under Order P-126 and other programs for repair parts production and maintenance, as well as limited production since December of 1943, postponed some replacement needs. The following table, however, shows the production requirements for one year necessary to meet urgent replacement needs today:

| | Total Units |
|--------------------------------|-------------|
| Display cases (all types)..... | 52,000 |
| Reach-in refrigerators | 25,000 |
| Walk-in coolers | 8,500 |
| Total number required | 85,500 |

Where the Family Food Dollar Goes % of Family Food Purchase Dollar

| | |
|---|------|
| Dairy products | 27.8 |
| Meats, poultry, seafoods..... | 21.9 |
| Fruits and vegetables | 12.2 |
| Total | 61.9 |
| Dry groceries and other non-perishables | 38.1 |

In 1943 total retail food store sales were \$16,620,000,000, of which perishables which should be kept under refrigeration totaled \$10,250,000,000.

Number of Installations in Use in 1943

(From report of General Task Committee on Air Conditioning and Refrigeration, November, 1943.)

| | Reach- Cases | ins | Coolers |
|---|-----------------|---------|---------|
| 1. Retail food stores | 358,000 | 132,100 | 55,550 |
| 2. Specialty stores | 66,000 | 49,750 | |
| 3. Eating establishments | 7,200 | 192,060 | 48,700 |
| 4. Locker plants | 1,800 | | |
| 5. Wholesale food | | | 21,033 |
| 6. Educational institutions .. | | 54,840 | 2,230 |
| 7. Hospitals | | 16,320 | 9,740 |
| 8. All others (hotels, prisons, etc.) | | 46,328 | 23,985 |
| Total | 443,000 | 491,398 | 161,238 |

1940 Production (As derived from 1944 U. S. Census Bureau Survey)

| | No. Mfrs. | 1944 Census* | Estimated |
|---------------------------------|-----------|--------------|-----------|
| 1. Display cases | 59 | 35,597 | 42,175 |
| 2. Reach-in refrigerators | 63 | 20,932 | 24,550 |
| 3. Walk-in coolers | 59 | 5,999 | 7,300 |
| Total | | | 74,025 |

*Estimated to represent 80% of overall production and adjusted to produce totals in final column.

Weatherhead Opens New Branch In Chicago

CHICAGO — Headed by C. T. Craig, district manager, a new direct sales office has been opened in the Pure Oil Bldg., Wacker Drive and Wabash Ave., by Weatherhead Co. of Cleveland, announces H. Church, vice president in charge of sales.

Mr. Craig will be assisted by Robert A. Lennox and C. V. Landwerlen, sales engineers.

Formerly director of purchases, Mr. Craig has been with Weatherhead for the past 13 years. He was formerly connected with the Otis Steel Co. and the Hutchinson management of Pioneer Steamship Co.

Mr. Lennox has seen engineering service with Evans Products, Temp-rite, U. S. Rubber Co., and Norge Division, Borg-Warner Corp., where he was engineering division director.

Mr. Landwerlen came to Weatherhead from the Electric Autolite Co., and has been in Weatherhead's Detroit sales area for the past seven years.

Commercial and Domestic REFRIGERATOR HARDWARE



NATIONAL LOCK COMPANY
ROCKFORD, ILLINOIS

WHEN PEACE COMES

KOCH

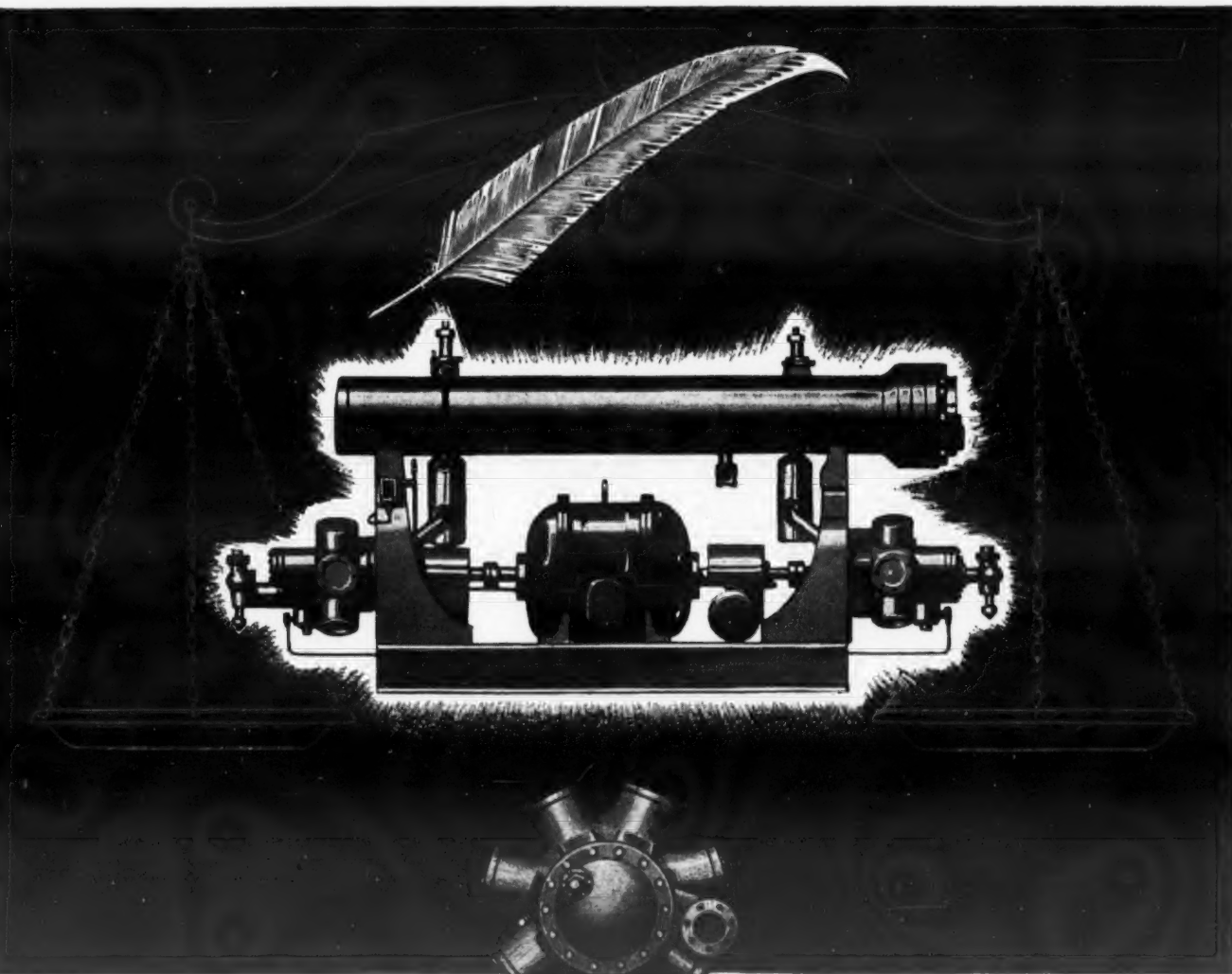
WILL AGAIN PRODUCE COMMERCIAL REFRIGERATOR EQUIPMENT FOR CIVILIAN USE

NOW SOME SELF-CONTAINED REACH-IN REFRIGERATORS ARE AVAILABLE FOR THOSE WHO CAN QUALIFY

Write — Wire — Phone



KOCH REFRIGERATORS
NORTH KANSAS CITY . . . MO.



CHRYSLER AIRTEMP

VARIABLE CAPACITY RADIAL COMPRESSOR

Light in Weight

The compact, efficient design of the Chrysler Airtemp Radial Compressor materially reduces the over-all weight of this famous air conditioning and refrigerating unit. With such light weight, no special foundations are needed . . . heavy duty units can be installed simply and quickly . . . can be placed on any regular floor without bolting down.

Practically free from vibration—you can balance a penny on the compressor while it is running at 1750 R. P. M.—the Chrysler Airtemp Variable Capacity Radial Compressor provides quiet, dependable tem-

perature-humidity control. When radio stations install Chrysler Airtemp Heavy Duty Units on the floor right over sound-proof studios . . . you can be sure the light weight and smooth performance are features of undisputed value.

In your postwar planning be sure and specify Chrysler Airtemp air conditioning and refrigeration. Also, put your present temperature-humidity control problems up to us. It will pay you to investigate fully. Airtemp Division of Chrysler Corporation, Dayton, Ohio. • In Canada, Therm-O-Rite Products, Limited.

Buy More War Bonds! Tune in Major Bowes every Thursday, CBS., 9 p. m., E. W. T.

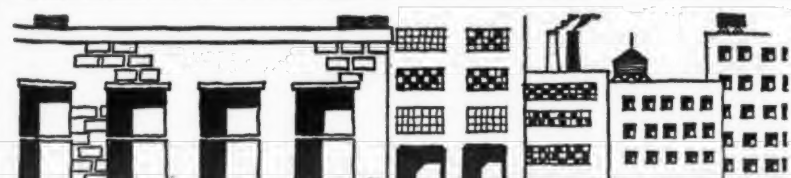
CHRYSLER AIRTEMP

HEATING • COOLING • REFRIGERATION

Annual Production of Display Cases, Reach-ins, And Walk-in Coolers for 1938 Through 1943

| | 1938 | 1939 | 1940* | 1941 | 1942 | 1943 |
|-----------------------|--------|--------|--------|--------|--------|-------|
| Display cases | 44,000 | 44,000 | 42,000 | 28,000 | 8,000 | 6,000 |
| Reach-ins | 13,000 | 16,000 | 25,000 | 16,000 | 10,000 | 8,000 |
| Walk-in coolers | 6,000 | 7,500 | 7,300 | 8,000 | 6,000 | 7,500 |

*1940 totals from 1944 special census, other totals estimated.



MISTER MANUFACTURER,
WE DISCOUNT OUR BILLS
WON'T YOU PLEASE
SELL US
SOMETHING?

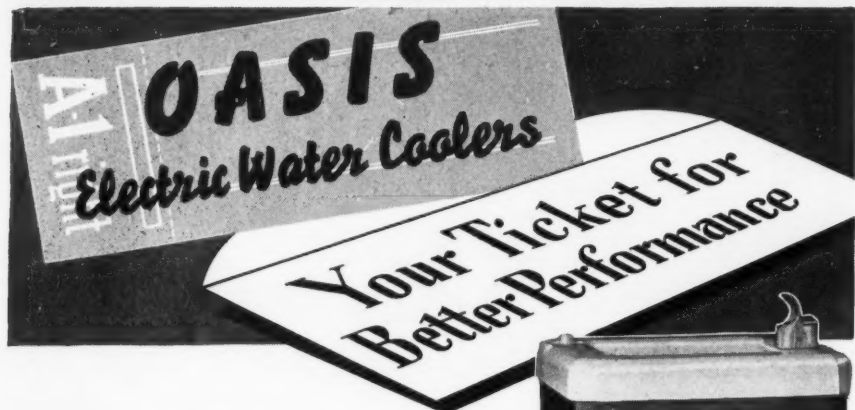
WE JUST OPENED A LARGE STORE IN COLUMBUS OHIO (30,000 SQ. FT.) and NEED MERCHANDISE OF ALL KINDS.

MORTON SHOW CASE CO.
110-112 EAST FOURTH ST.
DAYTON 2, OHIO.

E. GEORGE SANDERS, President

WE NEED EVERYTHING FOR RESTAURANTS and GROCERY STORES
WE CARRY THE LARGEST STOCK OF FIXTURES in OHIO

**MORTON
SHOWCASE
COMPANY**



OASIS Electric Water Coolers put you "right up in front" when it comes to performance! They're made by people who pioneered in the electric water cooler field . . . built in one of the most fully equipped production-line plants of its kind in the country. You can always bank on Oasis Coolers to be ready instantly, 24 hours every day, with fresh, sanitary drinking water cooled to the most satisfactory temperature, and delivered "splash-free" at the most easily "drinkable" flow skilled engineering can devise. For the best in thirst-relief—for the most in low-cost, continuous performance—be sure they're OASIS Electric Water Coolers!

EBCO MANUFACTURING COMPANY
401 W. Town St., Columbus 8, Ohio

Approximately 50% of Soda Fountain Units Are Beyond Replacement Age

Task Committee Report on Refrigerated Soda Fountain Equipment

Prepared for the War Production Board in August, 1944, by W. D. Jordan, R. L. Smith, and E. M. Fritz.

Description

There are five general types of refrigerated soda fountain units:

Fountain cooler box: This unit provides refrigerated dispensing equipment for ice cream, syrups for sundaes, carbonated water, and tap water. Cabinet portion of the unit houses package ice cream, bulk ice cream cans, fruit syrups for sundaes, and may have space for bottled beverages. On the rail of the unit is the jar enclosure for syrup jars and draft arms for the water.

Fountainette unit: Smaller than the fountain cooler box, the fountainette usually has little or no space for ice cream, the ice cream being held in a separate cabinet. The fountainette may also contain a sink.

Refrigerated salad cabinet: This has space to keep foodstuffs usually served at soda fountains, such as salads, sandwich spreads, lunch meats, etc. It is equipped with a workboard for making sandwiches and for other food preparation.

Refrigerated back bar base: Built with a table top or shelf surface, this unit is designed for storage of

bottled beverages and foodstuffs.

Ice cream cabinet: This is a typical ice cream cabinet for bulk and package ice cream providing additional storage space for the establishment possessing the large fountain cooler box, and serving as the ice cream unit when used in conjunction with a fountainette.

Function

Originally a "soda fountain" dispensed only carbonated beverages. Later developments added ice cream so that the typical fountain purveyed sodas, sundaes, and ice cream. Today, as for the past several years, a "soda fountain" also sells food, ranging from simple, easily prepared sandwiches to more elaborate meals. This latter function of a "soda fountain" necessitates refrigeration equipment for food preservation.

Refrigerated soda fountain equipment is found in a wide variety of establishments: drug stores, confectioneries, restaurants, variety stores, department stores, ice cream stores, small "general" stores, and refreshment stands throughout the country.

Soda fountains do an annual volume of more than \$1,190,000,000 in sales, of which \$981,750,000 represents food and dairy products, estimates the Task Committee. Annual sales of 322,000,000 gallons of ice cream are also attributed to fountains, and \$267,750,000 in annual fountain sales is provided by carbonated beverages, fruit drinks, milk, and other dairy products.

Number of Soda Fountains* in Use (Patronized by 20,000,000 People Daily)

| | Soda Fountains |
|--|----------------|
| Drug stores | 40,000 |
| Confectionery stores | 40,000 |
| Restaurants | 15,000 |
| Variety stores | 2,000 |
| Department stores | 400 |
| Ice cream stores | 5,000 |
| Small stores, refreshment stands | 17,600 |
| Total for U. S. | 120,000 |

*Fountain cooler boxes and fountainettes.

Installations of All Refrigerated Soda Fountain Equipment

| | |
|-----------------------------------|----------------|
| Cooler boxes or creamer units .. | 85,000 |
| Fountainettes or bottails | 35,000 |
| Salad-sandwich units | 35,000 |
| Back-bar base, refrigerated | 15,000 |
| Total | 170,000 |

Lag in Replacement*

| | |
|-------------------------------------|------------|
| 1941—One half of normal | 5% |
| 1942—Very little | 9% |
| 1943—None | 10% |
| 1944—None (half year to June 30) .. | 5% |
| Total lag | 29% |

*Based on normal replacement of 10% annually.

Minimum Replacement Requirements

| | |
|----------------------------|-------|
| Cooler boxes | 3,300 |
| Fountainettes | 3,175 |
| Salad-sandwich units | 1,650 |
| Back-bar bases | 725 |

Production of Refrigerated Fountain Equipment for 1940

| | |
|----------------------|--------------|
| Cooler boxes | 3,300 |
| Fountainettes | 3,200 |
| Salad units | 1,700 |
| Back-bar bases | 750 |
| Total | 8,950 |

Average Age of 120,000 Soda Fountains

| | |
|-------------------------|-------|
| Under 5 years | 1.0% |
| 5 years | 6.5% |
| 5 to 8 years | 28.2% |
| 8 to 12 years | 35.4% |
| 12 to 16 years | 19.5% |
| 16 years and over | 6.3% |
| Unknown | 3.1% |

Principal Soda Fountain Manufacturers

| |
|---|
| Anheuser-Busch, Inc., St. Louis. |
| Bastian-Blessing Co., Chicago. |
| Brunswick-Balke-Collender Co., Chicago. |
| H. A. Carter, Inc., Richmond, Va. |
| Danforth Soda Fountain Co., Glendale, Calif. |
| Fischman Co., Philadelphia. |
| Grand Rapids Cabinet Co., Grand Rapids, Mich. |
| L. Grauman Co., Denver, Colo. |
| Robert Green & Sons, Philadelphia. |
| Holderle Bros., Inc., Rochester, N.Y. |
| Hygrade Soda Fountain Mfg. Corp., Brooklyn, N.Y. |
| The Liquid Carbonic Corp., Chicago. |
| Meyer-Smith Co., Buffalo, N.Y. |
| Moser-Hartman Co., Salt Lake City, Utah. |
| C. Nelson Mfg. Co., St. Louis. |
| M. H. Petigor Soda Fountain Co., Inc., New York City. |
| Phenix Soda Fountain Co., New York City. |
| San Francisco Soda Fountain Co., San Francisco. |
| Stanley Knight Corp., Chicago. |
| Schaefer, Inc., Minneapolis, Minn. |
| Super-Cold Corp., Los Angeles. |
| Walrus Mfg. Co., Decatur, Ill. |
| Weber Show Case & Fixture Co., Los Angeles. |

Table Showing Replacement Factor For Various Types of Refrigerated Soda Fountain Units

| | | Annual Production For Next 3 Years to Meet Normal Demand and Pick Up Replacement Backlog of Necessary Past 3 Years | | | |
|-------------------------|---------------------------|--|-------------|------------------------|-------|
| No. in Use | No. Now Over 10 Years Old | No. Normally Would Have Been Replaced 1941-1944 | Accumulated | Replacements Necessary | Now* |
| Cooler boxes | 85,000 | 39,600 | 24,650 | 16,500 | 3,300 |
| Fountainettes | 35,000 | 16,300 | 10,150 | 9,883 | 3,175 |
| Salad-sandwich units .. | 35,000 | 16,300 | 10,150 | 9,883 | 1,650 |
| Back-bar bases | 15,000 | 7,000 | 4,350 | 2,983 | 725 |

*These estimates include fountain equipment already out of service and equipment that will have to be taken out of service soon because of breakdowns.

Manufacturers!

Do you now have authorized service facilities in Boston and Metropolitan area? And if so, will they be satisfactory for the post war business you are planning? If not, now is the time to get set.

Our firm have been service specialists for eighteen years and serve an area of two million people. We are well financed and have competent employees and ample facilities, shop space, trucks, stock rooms, etc. to do a fine job for you. We are familiar with air conditioning, domestic and commercial refrigeration, low temperature applications, including ice cream freezing and food freezing. We can offer complete service from application engineering to warehousing, delivering, installing and servicing on all kinds of refrigeration or other major appliances. We would appreciate an opportunity to discuss the possibility of making our service department YOUR service department.

Miller & Seddon Co., Inc.

2089 Massachusetts Ave.

CAMBRIDGE, MASSACHUSETTS

**Water rolls off a duck's back
... BUT IT LEAVES ITS MARK
ON VALVES!**

● Every water valve is fair game for that destructive trio—Corrosion, Sedimentation and Rust. You can't shut them out entirely . . . but you can render them harmless, if you keep them away from sliding parts.

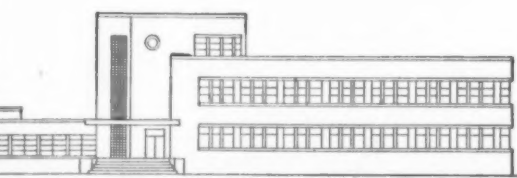
That's what PENN has done in the new Series 246 Water Regulator, designed so that no sliding parts make contact with the water. No chance here for abrasive deposits to form.

With sliding parts out of harm's way, there's no trouble from sticking seats or rusty range springs . . . no possibility of premature wear. PENN has eliminated water hammer as well, yet the valve is extremely sensitive to refrigerant head pressure changes. Manual flushing is another feature—of particular value in new installations.

But see for yourself how advanced engineering design has put this new PENN Water Valve in a class by itself. Write today for your free copy of Bulletin R-1986. Penn Electric Switch Co., Goshen, Ind. Export Division: 13 East 40th Street, New York 16, U.S.A. In Canada: Powerlite Devices, Ltd., Toronto, Ont.

The PENN Series 246 Water Regulator
... also available in flanged style

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

Beverage Cooler Production Over 80,000 Units in '40; 50,000 Asked For 1945

Task Committee Report on Bottled Beverage Coolers and Vending Machines

Prepared for the War Production Board in August, 1944, by H. F. Hildreth, P. H. Brennan, E. A. Terhune, and J. F. Walsh.

Description

"There are three general types of beverage coolers in use—wet type, dry type, and the automatic vending type. This report will cover wet and dry non-vending types and only vending types that refrigerate bottled products. Bulk type coolers that vend the beverage to a cup will not be included," states the Task Committee.

WET TYPE COOLERS

"This type of beverage cooler is usually a horizontal chest. Underneath the top lids which may be of the hinged lift type, or sliding type, is a water tank containing refrigerated water for keeping the beverages cooled. The water is refrigerated by means of cooling coils, either immersed in the water or wrapped around and in contact with the water tank itself, and a refrigerating compressor together with the necessary automatic controls for holding the water at approximately 34° to 37° F.

"The beverage to be most palatable should be cooled to approximately 40° F. The entire water tank is surrounded by insulation material of about 2 in. in thickness so as to provide for efficient operation of the cooler.

DRY TYPE COOLERS

"The general construction of this type of beverage cooler is rather similar to the wet type in many respects. The main difference is that the beverage is cooled by means of refrigerated air instead of a water bath.

"The refrigeration system in this type of cooler may consist of coils wrapped around the beverage compartment, and bonded to it, or a refrigerated coil or finned surface with a small blower mounted in the beverage compartment, and attached in either case to a small refrigeration compressor and equipped with the required automatic temperature controls for maintaining proper operation. As in the wet type, the entire beverage cooling tank is surrounded by at least 2 in. of insulation material.

AUTOMATIC VENDING TYPE COOLERS

"There are two general types of automatic vending coolers for bottled beverages—one with the horizontal chest type cabinet and one with the vertical type cabinet, similar to a household refrigerator cabinet.

HORIZONTAL CHEST TYPE

In the horizontal chest type, which

may be either wet or dry type, the top lids are locked into place and a coin-operated vending mechanism is built into the cabinet top. By the insertion of a coin, a bottle of beverage can be obtained through an opening in the top of the cabinet.

"Through the use of the vending mechanism, it is also possible in some cases to vend several flavors by means of a single cooler. The refrigeration and other such portions of this cooler are similar in all respect to that used in the above wet and dry types of coolers. This vending mechanism is usually manually operated.

VERTICAL CHEST TYPE

"The other design has the vertical type cabinet, similar to a household refrigerator cabinet, and in this unit the vending mechanism is usually mounted on the front center panel. With these the bottles are conveyed automatically to the dispensing opening so that when the dispensing mechanism is operated by a coin, the bottles feed by gravity through the opening in the cabinet front.

"The refrigerating equipment, including controls, evaporators, and the like, are usually mounted in the top portion of the cabinet and the vending mechanism on this unit is usually electrically operated, as compared to the manually operated mechanism used with the chest type."

"To indicate the unusually broad use of bottled beverage coolers, we are listing below some of the establishments where the product is usually found:

Filling stations and garages, grocery stores and delicatessens, schools and colleges (in cafeterias and lunchrooms), restaurants, hotels, industrial plant cafeterias, railroad and bus terminals, airports, recreation halls and centers.

Sports stadiums, soft drink parlors, industrial plants and offices, office buildings (private, city, state, and federal), drug stores, clubs (fraternal, golf, and others), theaters, amusement parks, roadside stands, shipyards, post exchanges (Army and Marine), ship service stores (Navy and Coast Guard), USO centers, military cantonments and establishments.

"Early in 1943, a report was issued by the Office of Civilian Supply, now OCR, War Production Board to the Director of Economic Stabilization, 'Estimates of Minimum Civilian Consumer Requirements' . . . wherein it is stated in reference to soft drinks that the experience of other countries engaged in war has indicated that a substantial quantity of this product should be made available to the civilian population for the maintenance of morale.

"Recognizing the importance of soft drinks to the average American,

the President has been quoted by the *New York Times* as saying that, 'I do not want to prevent the people from drinking soft drinks because this is a part of their civilization.'

"Cooled beverages hold an important place in the maintenance of health, safety, and morale of workers in industrial plants. Labor and safety officials, as well as management, insist that soft drinks be available in these plants.

"Beverage coolers in industrial plants are a direct announcement of the employer that he sanctions cold drinks on the job. Employers know that it helps production and workers appreciate sanction of the employer, and view the cooler as a definite improvement in working conditions.

"Where war work has been most exacting and required long and trying hours, it is recognized by management that cooled beverages readily available help break the tedium, and by providing a few minutes of relaxation are always helpful and welcomed by the workers.

"Today a large number of our beverage coolers are being used in American camps and other military establishments. Our Armed Services are tremendous consumers of soft drinks and these must be properly refrigerated to be palatable.

"Circular No. 153 issued by the War Department over the signature of General George C. Marshall, Chief

of Staff, dated July 5, 1943, states that soft drinks are one of the essentials to the maintenance of morale in the Armed Services."

1940 Production, Number in Service, and Value of Refrigerated Product

| | |
|---|---------------|
| 1940* electric cooler production | 81,754 |
| Coolers in service | 600,000 |
| Estimated annual sales value product refrigerated by coolers† | \$400,000,000 |

*Reported by U. S. Bureau of Census. †Based upon each cooler handling five cases a day, 25 days a month, six months a year, and at \$1.20 a case.

The average life or expectancy of beverage coolers is 10 years, but due to the hard usage and a sharp reduction in service manpower and facilities, the Task Committee believes that the average expectancy could be established at less than 10 years today.

"From the best information available to us, it is estimated that a total of 10% of the coolers installed, or 60,000, are now beyond any practical repair and should be replaced. This demand is conservative and would only meet the bare replacement cooler needs."

Estimated Minimum Needs For 12-Month Period*

| | |
|----------------------------|--------|
| 1944—4th Quarter | 10,000 |
| 1945—1st Quarter | 20,000 |
| 1945—2nd Quarter | 20,000 |
| 1945—3rd Quarter | 10,000 |

*The Task Committee believes this production could be handled "without interference with the war effort."

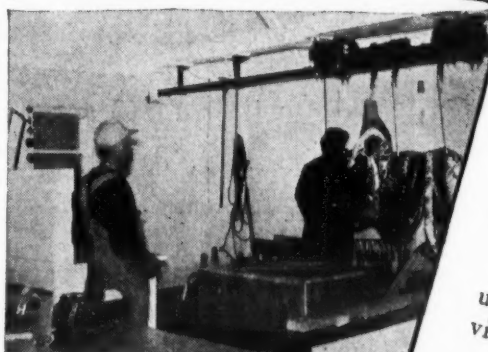
LIST OF MANUFACTURERS

("A representative list of . . . those known to have been engaged in manufacturing coolers at the time production was prohibited.")

Frigidaire Div., General Motors Corp., Dayton, Ohio.
Westinghouse Electric & Mfg. Co., Springfield, Mass.
Nash-Kelvinator Corp., Detroit.
General Electric Co., Bloomfield, N. J.
S & S Products Co., Lima, Ohio.
Portable Elevator Mfg. Co., Bloomington, Ill.
Blue Flash Products Corp., Buffalo.
Koch Butchers Supply, Kansas City.
Victor Products Corp., Hagerstown, Md.
International Harvester Co., Chicago.
Crosley Corp., Cincinnati.
Norge Div., Borg-Warner Corp., Detroit.
Glascok Bros., Mfg. Co., Muncie, Ind.
Cavalier Corp., Chattanooga, Tenn.
O. D. Jennings & Co., Chicago.
Mills Industries, Chicago.
Seeburg Corp., Kansas City.
Kalva Venders, Inc., Chicago.
Refreshment Vending & Machine Co., Inc., Chicago.
Beverage Vending Machines, Inc., Kansas City.
Selector Products Co., St. Louis.
Vendo Co., Kansas City.
Vendolator Mfg. Co., Fresno, Calif.
Vendall Div., Hydro Silica Corp., Floradale, Pa.
Dispensing Equipment Industries, Chicago.

Another

Dependable CURTIS Refrigeration Installation at No. Dakota Locker Plant



Yes, here's another installation of Curtis Condensing Units at the locker plant of the Harvey Cooperative Creamery Association, Harvey, N. Dak. Curtis Refrigeration Equipment Company, Minot, N. Dak.,

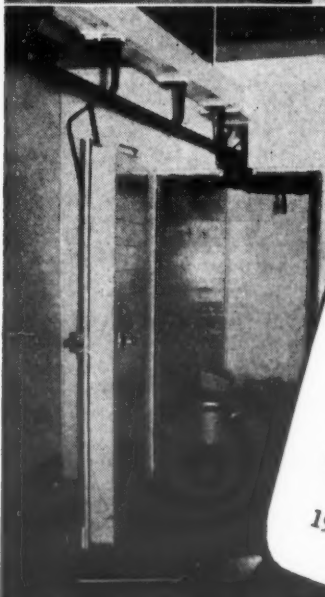
You'll find Curtis refrigeration and air conditioning units in all types of civilian installations as well as in vital Army and Navy uses around the globe today.

Ninety years of successful manufacturing experience back up every Curtis unit, assure dependable, exceptionally long machine life. Advanced engineering, precision manufacture, plus our wartime job of continuous production of regular Curtis products means even finer Curtis units when peace has been achieved.

The complete Curtis line offers units and equipment for practically every air conditioning and refrigeration requirement. Condensing Units from 1/8 to 30 H.P. air and water cooled; packaged air conditioning units, packaged and remote types, from 3 to 15 tons. Write to Curtis for full information.

CURTIS REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Co.
1912 Kienlen Avenue
St. Louis 20, Missouri

Interior views of New Locker Plant of the Harvey Cooperative Creamery Assn., Harvey, N. Dak.



1 1/2 H. P. Curtis Air Cooled Condensing Unit

3 H. P. Curtis Shell and Tube Condensing Unit

In locker plants everywhere — including the world's largest, at Oklahoma City, here shown — provides the steady low temperatures that mean the safe storage of food. You can profit by our 62 years' experience in food storage work; find out now what Frick Refrigeration, Frick Freezers, and Frick-Knickerbocker Lockers can do for you. Bulletin 145 gives the whole story on just how satisfactory and dependable they are. Write your nearest Frick Office or Distributor.

FRICK COMPANY
WAYNESBORO
PENNA.

Advantages and Disadvantages of the Butane and Ethane Type of Refrigerant

Claim Made That Costs Will Be Lower, But Greater Hazards Are Entailed

PITTSBURGH, Pa.—If the buyer of low temperature refrigeration equipment will consider not only first cost but also the cost of installation, special equipment, general maintenance, and availability and cost of the refrigerant, he may find it worthwhile to use a hydrocarbon refrigerant, declared Harry D. Edwards of the Linde Air Products Co. when he spoke at the thirty-first spring meeting of the American Society of Refrigerating Engineers.

"Considering the very satisfactory refrigerants which are generally available, and considering the efficiency of the mechanical equipment which has been developed for handling them, it would seem that there could be no interest in the hydrocarbons for general use as such," said Mr. Edwards.

NAMES OF THE REFRIGERANTS

"However, all of them, namely, butane, isobutane, propane, propylene, ethane, and ethylene, have use as refrigerants in many industrial installations because of their very satisfactory thermodynamic properties, their availability, and low cost. "It is a well known fact that thou-

sands of pounds of the hydrocarbons are in use in refrigeration installations located in plants of the chemical and the refining industries, these being two industries in which the use of a hydrocarbon refrigerant does not generally increase existing operating hazards," he continued.

"The refrigeration industry seldom hears of these installations since the equipment used is generally similar to the gas compressors, condensers, coolers, and heat exchange apparatus used in associated processes, rather than the special equipment associated with the refrigeration industry."

NO SUBSTITUTE FOR 'FREON'

Mr. Edwards did not encourage the substitution of refrigerants to replace "Freon," so tightly controlled by the government. Substitutions "certainly should not be made without consent and approval of the equipment manufacturer and without full compliance with the American Standard Safety Code for Mechanical Refrigeration B-9," he emphasized.

In discussing the hydrocarbons, Mr. Edwards called attention to the fact that most of the commercial

hydrocarbons contain small amounts of other hydrocarbons which generally affect their boiling point. One supplier, he said, lists the initial boiling point of propane as -51°F , as compared to a boiling point of -44.18°F listed in a table prepared by Mr. Edwards.

"While hydrocarbon mixtures can be and are used in refrigerating cycles, a closely controlled operation requires the use of a high purity product," he warned.

QUESTION OF HAZARDS

"A question for some years past has been, 'Can anything be done to make the hydrocarbons less flammable?'" continued Mr. Edwards. "Apparently, few refrigerating engineers realize that this has been done in the production of the 'Freon' group of refrigerants which are 'halogenated hydrocarbons' or, as Kinetic Chemicals, Inc., calls them, 'fluorinated hydrocarbon derivatives.'"

A tabulation prepared by Mr. Edwards covering molecular weight and boiling point of the hydrocarbons having pressure characteristics suitable for use as refrigerants, the "Freon" group, other refrigerants, and some chemicals showed four main results:

ANALYZING THE PROPERTIES

1. Boiling point increases with increase in molecular weight.
 2. The non-flammability characteristics increase progressively as halogens replace hydrogen.
 3. Flammability increases with increasing hydrogen content. "F-11," "F-12," "F-113," and "F-114" are all non-flammable, but "F-21" and "F-22," which contain hydrogen, are not strictly so, said Mr. Edwards.
 4. Practically all the usable combinations of the hydrocarbons with chlorine and fluorine needed to give a wide range of boiling points are included in the "Freon" group of refrigerants.
- Two hydrocarbons not now commercially available but possessing characteristics which might make them ideal for low temperature work were mentioned by Mr. Edwards. They are: fluoroform (CHF_3) with a boiling point of -116°F , and carbontetrafluoride (CF_4) with a boiling point of -202°F .

POSSIBLE APPLICATIONS

"Numerous low temperature installations have been made simulating stratosphere conditions for testing the materials used in airplane construction and for determining human reactions under flight conditions," continued Mr. Edwards.

"Evaporator temperatures from -80°F to -100°F are commonly maintained in material test units, which are generally small, with the size varying from one to 10 tons. Compressors and associated apparatus, using the 'Freon' refrigerants, are readily available for these applications. There are also the very large installations of above 150 tons, of which there are now several. These generally utilize centrifugal or rotary compressors using the 'Freon' refrigerants.

"But medium size low temperature machines are not available at the present time, although I expect that sooner or later they will be marketed," he added.

Another table included by Mr. Edwards in his paper showed for purposes of comparison, some of the thermodynamic properties of nine miscellaneous substances when used as refrigerants with an evaporating temperature of -100°F and a condensing temperature of 86°F . Results of this tabulation led Mr. Edwards to say:

WHERE NOT TO USE

- "1. That normal butane and isobutane should not be used with evaporating temperatures as low as -100°F on account of their low vapor pressure at that temperature.
- "2. That 'F-12' would not be as effective as ammonia, 'Freon-22,' or propane, which all have about equally satisfactory properties. However, ammonia is not suitable for centrifugal compression.
- "3. That the thermodynamic properties of ethane are very good for

use under the conditions specified.

"4. That ethylene has excellent properties when condensed by either a 'Freon,' propane, or ammonia auxiliary cycle."

AIR MIXTURE HAZARD

Mr. Edwards warned against using a hydrocarbon refrigerant unless one is prepared to provide against the fire hazard created by leaking refrigerant, either by planning an installation, the parts of which cannot ignite a hydrocarbon-air mixture, or by adequate ventilation so that any such mixture cannot be formed.

"Some believe that a hydrocarbon should not be evaporated in a refrigerating system at sub-atmospheric pressure in order to avoid the possibility of drawing air into the system and creating an explosive mixture," he said. "It should be remembered that the system would have failed to produce any refrigerating effect long before the air content became 70%, which is the lowest amount of air necessary to form an explosive mixture with any hydrocarbon."

REQUIRED APPARATUS

Essentially the same type of apparatus is required by all hydrocarbon refrigerants for low temperature work, said Mr. Edwards. Any materials of construction can be used except rubber, since the hydrocarbons form no deleterious mixtures or compounds with water or oils.

"The use of refrigerant having suitable thermodynamic and physical properties does not necessarily guarantee a satisfactorily operating refrigeration system," cautioned Mr. Edwards. "The satisfactory operation

of the mechanical equipment handling the refrigerant is much more important than utmost efficiency, consequently, the simpler the system, the better."

OIL IS A PROBLEM

Arrangement of the compressor and other parts of the system will depend on the results desired, he said. All these parts may be standard units used for the compression and cooling of air and natural gas and for the condensation and evaporation of the latter. These parts are all obtainable from many builders.

"In selecting, as of today, the mechanical equipment for using a hydrocarbon as a refrigerant, it should be remembered that available lubricating oils are generally soluble in the hydrocarbons. Therefore their vapors should be appreciably superheated before compression in oil-lubricated cylinders in order to avoid any possible cutting of the lubricant by liquid entering or by liquid formed therein.

"It is generally desirable to construct the evaporator for the settled pressure at atmospheric temperature, and with ample vapor volume for liquid expansion, so that in case of a power failure, any liquid therein can be held without any of it being discharged through the safety valve thereon," he pointed out.

TANDEM ARRANGEMENT

"While most any compressor cylinder arrangement is suitable for handling the hydrocarbons, packing leakage may be reduced by using a tandem type compressor employing

(Concluded on Page 31, Column 1)

Do You Know a better way

- ...to heat a house?
- ...to cool a house?
- ...to heat water?
- ...to refrigerate food?
- ...to build a temperature control?
- ...to make an automatic valve?

If you have developed a better way to do any of these things and if your ideas can be protected... here is your opportunity!

The AiResearch Manufacturing Company is preparing now for the postwar period and is in the market for ideas, inventions and products for postwar development, manufacture and sale.

AiResearch has skilled engineering and production groups at present engaged in development and manufacture of oil coolers, intercoolers, exhaust heat exchangers and cabin pressurizing equipment for wartime aircraft. In peacetime this organization will continue the job of improving aircraft, for which it has three times won the Army and Navy "E" since Pearl Harbor. But also its fully equipped laboratories and manufacturing plants will be able to develop improved peacetime products for better postwar living... and its well-organized sales force will be given the job of their promotion.

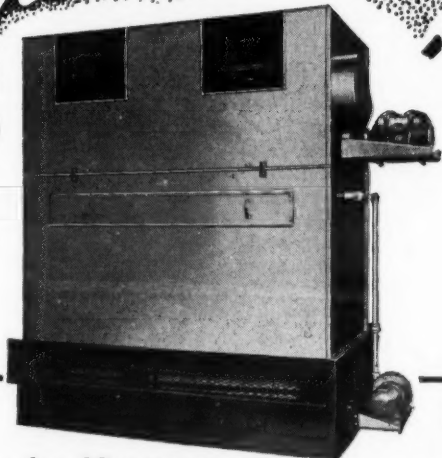
On an outright purchase or royalty basis, AiResearch is ready now to negotiate for exclusive rights to those ideas and inventions believed practical to its abilities and resources. AiResearch would like to hear about your idea. Write as fully as possible. You will receive a prompt answer and your correspondence will be held in confidence.

Address: POSTWAR PLANNING COMMITTEE

AiResearch Manufacturing Company
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AiResearch
DIVISION OF
THE GARRETT CORPORATION

Evaporative Condensers



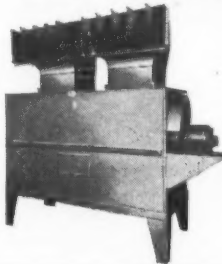
Out of more than 25 years experience comes the development of this year's models of Acme Evaporative Condensers.

Wherever water supply presents a problem they furnish the most efficient and economical solution. For Acme has found a way to provide plenty of cooling surface without the use of fins and conserve valuable space.

Cooling coils are all prime surface and especially designed for evaporative condensers. Definitely they're more efficient. A wide range of capacities. Write for catalog No. 27.

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BLO - COLD FORCED AIR COOLERS



Floor type units for high or low temperature requirements wherever forced air cooling is advisable. Dry fin coil type and brine spray models—a unit for any job. Our engineers are at your service if they can be of help to you. For complete recommendations, write for Catalog No. 32.



ACME PRODUCTS

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| Evaporative Condensers | Forced Convection Units |
| Ammonia Condensers | Pipe Coils |
| Freon Condensers | Heat Interchangers |
| Dry-Ex Water Coolers | Oil Separators |
| Flooded Water Coolers | Liquid Receivers |
| Hi-Peak Water Coolers | Heat Exchangers |

Write for Catalog on any item.

ACME INDUSTRIES
JACKSON, MICHIGAN

'Laughing Gas' For Increased Cold Storage Capacity May Offer Needed Postwar Freezer Space

(Concluded from Page 30, Column 5)

different pistons, with the first stage adjacent to the compressor frame, thereby eliminating all but the first stage stuffing box. Leakage through this one packing may generally be eliminated by using the so-called double housing with the housing space vented back to the compressor suction."

If the system were sufficiently large, the first stage of compression could be the centrifugal type, or, if desired, the entire compression may be handled on a multi-stage centrifugal compressor with flash inter-cooling at any or all stages of compression, according to Mr. Edwards.

"You may be interested to know," he added, "that a 5,000-hp. installation of centrifugal compressors is now being made to compress hydrocarbons in two stages from 0 to 29.8 lbs. abs. and from 25 to 125 lbs. abs. The hydrocarbons are easily handled by centrifugal compressors since their molecular weights are all well within the range of this type of unit, namely from 18 to 150."

'LAUGHING GAS' POSSIBLE

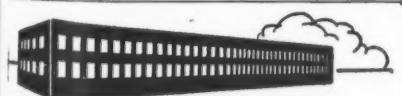
The possibility of using nitrous oxide ("laughing" gas) in low temperature work was touched upon by the speaker, because, he said, the subject is being discussed by some people today.

While nitrous oxide compares well with carbon dioxide in physical properties, and its heat curves are similar to those of CO₂, the user of nitrous oxide must remember that (1) the gas can cause death, (2) iron burns in the gas at temperatures below 368° F., (3) it readily forms an explosive mixture with air and so requires very careful control.

In commenting on Mr. Edwards' paper, M. G. Farrar of Carbide and Carbon Chemicals Corp. discussed the use of propane in the commercial form as a fuel. He pointed out that there are two sources for propane: natural gas and the cracking of petroleum. As a refrigerant, propane is specially processed and considerably more refined than when used as a fuel, he said. Ethane, he added, has considerable possibilities in low temperature applications where a two or three-stage system is used.

WARNS OF COST FACTOR

R. J. Thompson of Kinetic Chemicals, Inc., in his comments on the paper made the point that the cost of the refrigerant used in low temperature applications should not be over-emphasized. Refrigerant cost is but a very small percentage of the total cost of the complete refrigerating system, and thus, he said, should not be considered as being too important.

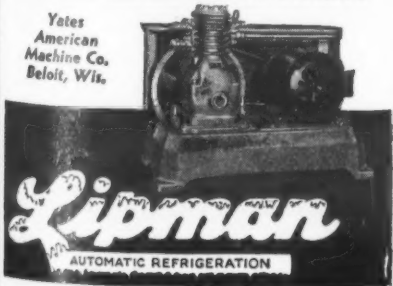


WAR INDUSTRIES NEED REFRIGERATION

The use of refrigeration in industry has been greatly accelerated by the war. In peacetime this expansion may logically be expected to continue. Write for literature.

GENERAL REFRIGERATION DIVISION

Yates
American
Machine Co.,
Beloit, Wis.



WASHINGTON, D. C.—Cold storage capacity for food is expected to increase within the next few months sufficiently to care of anticipated requirements, the Office of War Information has reported on the basis of information from the War Food Administration, Foreign Economic Administration and other agencies.

The situation, however, will depend largely on the progress of the war and the orderly movement of commodities from this country to our armed forces and our fighting allies. Disruptions in shipping to the fighting fronts, droughts, and unseasonal slaughtering of cattle and hogs could precipitate a crisis in storage despite the availability of new space, WFA said.

The crisis in food storage reached a peak recently with the heavy into-storage movement of eggs. The volume of food in cold storage is expected to reach another high point later in the summer or in early fall, but by then most of the 8,000,000 cubic feet of new storage space to be made available this year should be ready for use. Full effect of the restrictions on storage ordered early this year also should be felt by the time the fall harvests are streaming into the nation's cold storage warehouses, WFA said.

OUTLOOK FOR STORAGE

The outlook for storage, according to WFA, is:

1. The freezer peak, reached the first of March when more food was in this type of storage than at any previous time in the nation's history, probably will not be exceeded again this year, unless severe droughts in late summer precipitate unseasonal slaughtering of cattle and hogs or the shipping situation deteriorate.

2. Cooler occupancy, now at a record-breaking level, is expected to remain high throughout the summer and early fall. The degree of congestion will depend upon the shipping situation and, in the fall, upon the size of the apple crop.

The 8,000,000 cubic feet of new storage space, roughly half of which will be financed by the Defense Plant Corp. and half by private capital, will be in addition to approximately 5,000,000 cubic feet of space to be added to fish-freezing units, packing and food processing concerns, and as small additions to public storage facilities in various parts of the country. This 5,000,000 cubic feet is largely "odds and ends," and all privately financed, according to WFA.

ONLY 3% CAPACITY GAIN

All the increase—in new plants and as additions—will constitute less than 3% of the present refrigerated storage room for food, but it will represent all that it appears possible to build, said OWI.

One of the largest plants (1,250,000 cubic feet) to be added to the network of storage houses will be situated in Portland, Ore., and will be built by the Defense Plant Corp. Others will be situated in the southeastern States, in Texas, and in western areas of the country.

These additions do not include facilities constructed out of Lend-Lease funds. Lend-Lease made funds available to WFA for acquiring storage space in ports where critical situations prevailed, and last year allocated approximately \$2,000,000 to the Army for construction of cold storage warehouses in three West Coast localities to provide space for food destined for Russia.

HOW THEY BULGE NOW

Cold storage facilities, now overcrowded in a manner that would not have been believed possible in peacetime, include 138,988,000 cubic feet in

cooler space in public warehouses (commercial establishments in which space may be leased); 101,657,000 cubic feet of freezer space in public warehouses; 183,447 cubic feet of cooler space in meat packing plants, private warehouses, and apple houses; and 41,373,000 cubic feet of freezer space in meat packing and other private houses.

Freezer space is kept at a temperature of 29° F. or lower, and cooler space is held at temperatures ranging between 30 and 50° F. Cooler space is occupied by such foods as shell eggs, fresh vegetables, and fruits, cured meats, cheese, and certain other dairy products. Broken eggs, ear-marked for drying, are an example of the foods that must be

housed in freezers. Meats and butter, of course, also occupy large quantities of freezer space.

As of June 1, 1944, the cooler space in public houses was 83% full, although 80% is regarded by the trade as the maximum occupancy, and freezer space was 85% full. Early in the year freezer occupancy reached the all-time high of 92%. Packing plants as of May 1, also were overcrowded, the coolers being 95% full and the freezers 87%. Apple houses on the other hand, were only 37% occupied, owing to the fact that this was the slack season for these plants.

The cold-storage industry has been cautious in expanding, remembering its experience after the last war

when space was long empty. The Defense Plant Corp. has assisted in providing money for facilities, leasing the warehouses to commercial groups. In addition, the War Production Board assigned an AA-1 rating for conversion of cooler to freezer space, and warehousemen throughout the country made the needed conversions.

Today many warehouses, including most of those that will be built this year, may be converted from freezer to cooler, or vice versa.

Conversions and other WFA storage programs made room for an additional estimated 500,000,000 pounds of meat during December and January. Total expansion since the beginning of the war has been nearly 9,000,000 cubic feet in public cooler space and 10,000,000 cubic feet in public freezer space.

There are approximately 5,400 frozen food locker plants in the country, with a capacity of 1,833,000 individual frozen food lockers and 25,000,000 cubic feet of low-temperature storage space.



OFF. U.S. NAVY PHOTO

What's the Temperature of a Task Force?

Topside a carrier may be simmering in the blazing heat of a tropical sun. In the magazine it is dim and cool . . . just the prescribed temperature for storing ammunition. Close to the flight deck in the "ready room" aviators relax in temperatures approaching the cold stratosphere to which their planes will take them. In the X-ray room delicate machines operate more efficiently because the temperature is right.

Almost everywhere in our giant task forces, the science of cooling is on the job . . . helping to save lives . . . preserving food . . . building morale for hundreds of thousands of fighting men. A battleship may be equipped with as many as ten separate York machines . . . and there are a dozen battle wagons in this force. About the same number of York units are required on a flattop . . .

and nine carriers lie at anchor here. Each of the scores of cruisers, destroyers and supply ships has its complement of refrigeration equipment. Even landing craft have their small self-contained refrigeration units. The total amount of air conditioning and refrigeration involved in a task force of this size staggers the imagination.

On ship and on shore York-created equipment is serving with our Armed Forces. Production facilities continue to meet ever increasing naval and military demands. In many cases requirements have called for new and superior techniques. Wartime developments will be reflected in materially improved air conditioning and refrigeration for a peacetime world.

York Corporation, York, Penna.



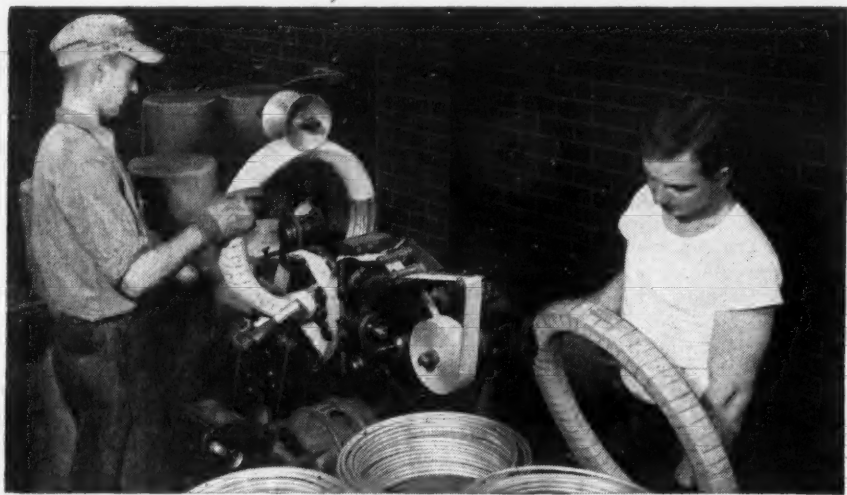
YORK ADVERTISING keeps York distributor's customers aware of his and York's vital contribution to the fighting efficiency of our Armed Forces. Ads like these appear regularly in FORTUNE, TIME, BUSINESS WEEK, NATION'S BUSINESS, DUN'S REVIEW, NEWSWEEK and a complete list of industrial papers

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TVA 'Floating Laboratory' Booms Idea Of Preserving Crops by Refrigeration

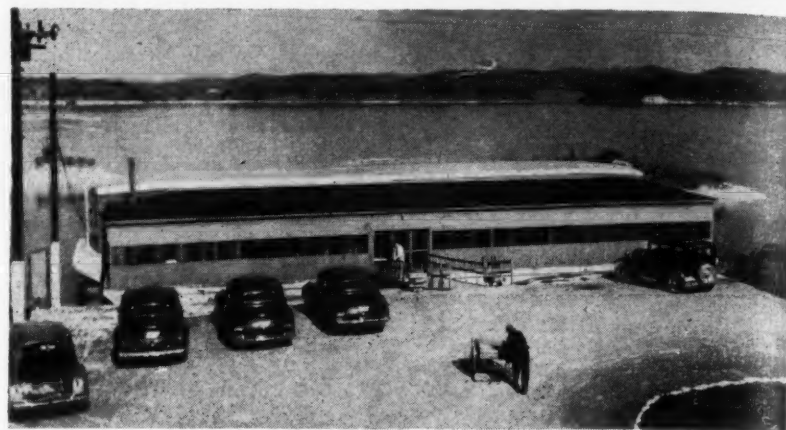
Helps 25 Plants Into Processing

KNOXVILLE, Tenn.—The Tennessee Valley Authority's experimental floating food laboratory anchored off Spring City, Rhea County, Tenn., is being conditioned for an intensive season of research. Thus far this year approximately 30,000 pounds of strawberries and 30,000 pounds of green beans have been experimentally quick frozen.

For a time it looked as if there was to be a very limited quantity of peas for experimental processing because of aphid infestation of the plots allocated for their production. However, airplane dusting was arranged for and both rotonone and nicotine sulphate were employed with good results. Now, with the locker freezer program of the TVA and its co-operating institutions in the Southeast approaching maximum interest, this unique plant, built on barges, is being revamped to keep pace with the anticipated demands that will be made on its technical staff.

At least 25 cooperative and individual commercial plants have been helped to a successful start in some phases of food processing, largely through the work done at Spring City, say TVA officials.

This unique pilot plant consists of three barges, on the newest of which



The barge-like "floating food laboratory" ties up at a road end on one of the lakes created by a TVA-area dam. The laboratory works at freezing experimentally the different kinds of crops raised in the southeast.



Girl workers in the laboratory inspect premium quality strawberries after they have been washed preparatory to freezing.

the processing machinery formerly installed on another is being rebuilt under daylight housing. It will embody facilities for the experimental quick freezing of fruits, vegetables, and meats; for canning foods cooked under pressure, and for the preparation of such foods.

Equipment hitherto employed had an estimated capacity for cold packing with sugar some 10,000 pounds of fruit a day, and the plant was also capable of handling half that amount of quick freezing, as well as 2,000 pounds per day of canned fish or similar products.

The No. 1 barge of this little industrial flotilla made history in food processing and transportation when in 1938 it carried 100 tons of zero frozen fruits from Chattanooga to St. Louis. The barge, 26 by 110 by 5½ feet above the deck line was equipped with a complete Diesel power plant for freezing and cold storing cold packed products.

This unit is being rebuilt and rearranged to some extent; among other things it will include a testing and control laboratory, with equipment for prompt proving of the quality of processed foods by actual kitchen use.

Included in the processing machinery are a complete washing and blanching assembly, strawberry capping machinery, fish smoking and curing equipment, a fish scaling machine, and a small industrial type pressure cooker. Top capacity of the washer and blancher is 500 pounds per hour.

Last season, under widely varying conditions, both immersion and air-blast freezing were used on vegetables, fruits and berries; a considerable quantity of chickens also

was frozen, and a substantial tonnage of turkeys was similarly prepared. The Army used several thousand pounds of the poultry.

The remainder of the 1943 product from this experimental machinery (aside from that used for laboratory tests) was used at the TVA's Fontana Dam construction project in North Carolina.

Indicative of the extent to which refrigeration figures in TVA efforts for bettering the man-hour-acre earning capacity of the Southeast is the rapid growth of a locker freezer industry in this territory and the amount of intensive work that is being done by educational institutions on various freezing processes. An example of this is Bulletin No. 232, "Preserving Sweet Potatoes by Freezing," published during May by the Georgia Experiment Station.

This bulletin contains complete data and discussions of all the steps involved in grading, preparing packaging, freezing, storing, and utilizing frozen sweet potatoes. The evidence presented shows that freezing is an economical and highly satisfactory means of keeping sweet potatoes.

The War Production Board just a few weeks ago authorized the largest initial installation of freezer lockers ever to be allotted to a cooperative plant in the Southeast, for Chickamauga Producers, Inc., of Cleveland, Tennessee. TVA and the University of Tennessee Extension Service have been interested in this project in an advisory capacity. It will embody 760 units with a freezing tonnage of 10,000 pounds a day.

A new type of air blast freezer developed by TVA in cooperation with the University of Tennessee will be installed.



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LONG EXPERIENCE

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(But Perfection is no detail)

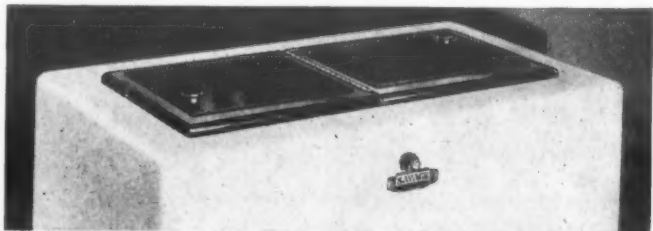
In a modern refrigeration laboratory, Savage Engineers are examining every promising new idea, material, technique, and production method.

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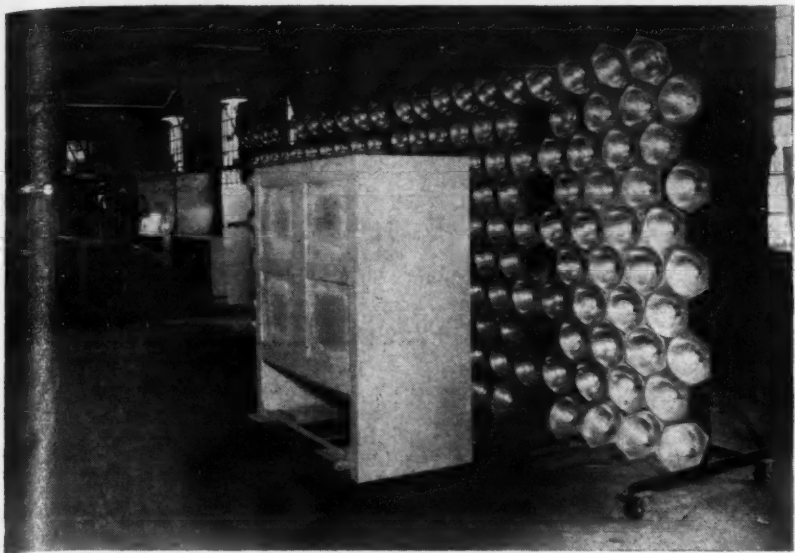
Post war visionaries would change the world over night. But Merchant & Evans Company, like other responsible manufacturers, will risk being called "conservative" by refusing to release untried, unproven mechanical changes just because they are new—or revolutionary. M & E's strong position as a maker of quality compressors has been built on the principle of 'time and test' before sale to the public.

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All-steel built on

Infra-red Batteries Speed Finishing



Movable banks of infra-red lamps, like the above, are employed at the Fogel Refrigerator Co. to bake enamel quickly on commercial refrigerators built for the Government. The lamps have cut finishing time 50%.

Fogel Expects Fast Gains in Civilian Production by Use of War Techniques

PHILADELPHIA—Development of new production techniques and equipment for manufacturing commercial refrigerators on Government contract will be carried over into postwar civilian production by Fogel Refrigerator Co. here, currently engaged solely in government and essential civilian work, but preparing for expansion after the war.

Latest Government contract received by Fogel calls for a large number of 35 cu. ft., self-contained, reach-in refrigerators for U. S. Navy export shipments, it was announced. Installation of new conveyor lines and automatic seam welding equipment for these all-steel refrigerators has reduced assembly time 60% to 70%, Fogel officials say.

Additional gain in production speed is obtained in Fogel's finishing department where batteries of infra-red baking lamps have been installed on large, movable carriages placed on each side of the conveyors. These lamps have cut finishing time 50%, and help give refrigerators a durable and lustrous finish, it is said.

Use of the new automatic welding equipment permits manufacture of all-steel cabinets, which can be assembled without screws or bolts and need no wood frame. Elimination of the wood framing permits 20% more insulation, while the welded construction gives the refrigerator more strength, say Fogel officials.

Moreover, this type of construction makes the equipment highly adaptable for export shipments to tropical countries where termites and other destructive elements, as well as unfavorable atmospheric conditions make it inadvisable to use wood, which rapidly deteriorates under such conditions, it is said.

Fogel's return to civilian production, when the signal is given, should be quite rapid, declares William Fogel, general manager of the company, because Fogel has continued to produce its peacetime products for war use by the government.

In addition to the regular line of display cases, walk-in coolers, and reach-in refrigerators, Fogel's post-

war production plans include several new items: freezer-type walk-in coolers with capacities ranging up to 750 cu. ft.; all-steel, dry-type bottled beverage coolers from 6 ft. to 10 ft. long; and all-steel reach-in refrigerators in capacities from 20 to 75 cu. ft.

Fogel will also offer unitized display cases, reach-in refrigerators, vegetable display cases, and beer-cooling equipment and intends to concentrate on self-contained equipment.

At present the company is appointing distributors to round out its coverage, according to I. Fogel, who heads the sales departments.

A finance plan for those distributors who do not have their own financing connections will be offered by Fogel, as in the past. Although 90% of present-day sales are for cash, it is expected that the postwar era may bring a return to the 20% down-36 months to pay instalment arrangements. Terms today call for 25% to 50% down and a year to pay.

Advertising and sales promotion plans for postwar sales are the most elaborate in the company's history, according to Edward K. Raker, manager of advertising and sales promotion.

Another postwar development of the company will be return of David Fogel to his post of supervising all field sales activity. He now is serving with the Fourth Infantry Division in northern France. In the May 20 issue of "Stars and Stripes," official U. S. Army newspaper, he was reported to have been instrumental in the capture of a German flier who landed on the coast of England.

Bassett Forms Refrigeration Firm in Monrovia, Calif.

MONROVIA, Calif. — Monrovia Refrigeration Service is the firm name under which La Verne Bassett has published a certificate that he is conducting business at 1437 East Huntington Drive, Monrovia, Calif.

Schmidt Joins Boling Co.

NEW YORK CITY — Horace I. Schmidt, formerly engineer with Friend Mfg. Co., Gasport, N. Y., and

manager of the Dallas branch of Fedders Mfg. Co., has joined the Cecil Boling Co., representative of Bush Mfg. Co., announces Mr. Boling. Mr. Schmidt will cover western

Pennsylvania, southern Ohio, West Virginia, and eastern Kentucky. A graduate of Carnegie Tech, he worked in Fedders' engineering department before going to Dallas.

Extra Capacity and Improved Operation In REFRIGERATION

● In plants where refrigeration uses a large proportion of total power, net savings as high as 35% have been created by the use of NIAGARA Duo-Pass AERO CONDENSERS. At the same time, refrigeration capacity has been increased without additional compressors. These gains result because the use of atmospheric air instead of water as the cooling medium provides excess condensing capacity and reduces head pressure.

Power savings, extra capacity and improved operation are lasting benefits because the Niagara patented DUO-PASS prevents scaling of condenser coils. Write for descriptive bulletins and records of savings that users have enjoyed. Saving of condensing water alone quickly repays the cost of installation.

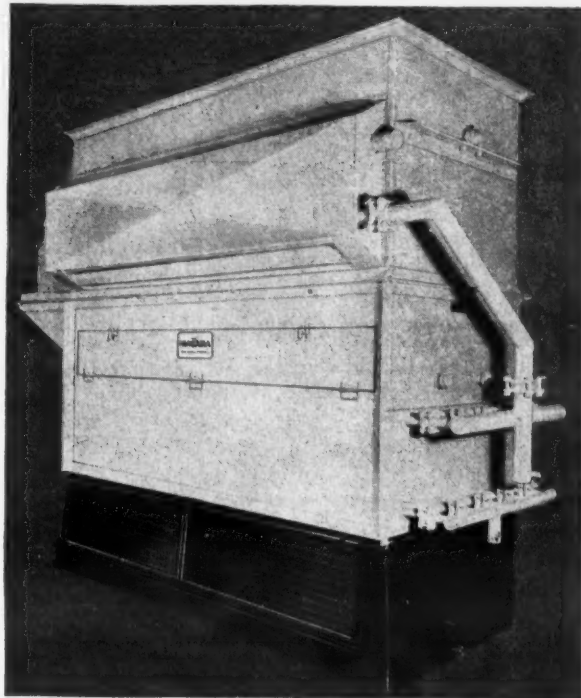
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Depend on *Anaconda* for thorough dehydration

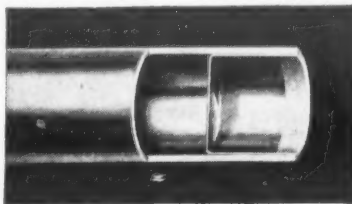
Interior conditioning is an important step in the manufacture of Anaconda Copper Refrigeration Tubes. Dry tube interiors — free of moisture and foreign matter, are assured by several carefully controlled procedures in finishing tubes after they have been drawn to size and wound in coils.

Twenty-five, fifty, and one hundred foot coils of Anaconda Refrigeration Tubing are passed through a controlled atmosphere annealing furnace which provides the tubes with uniform ductility, bright inside and outside surfaces and dry interiors. As the coils emerge from the furnace, warm dehydrated air un-

der pressure is blown through the coils to remove any remaining moisture. While filled with dry air the tubes are closed with the Anaconda Cup Seal (illustrated below) and soldered airtight.

Coils tested, daily, in the laboratory show that the moisture content is held well under the limits established by refrigeration industry authorities.

These finishing operations are examples of the care taken throughout the entire manufacturing process. It is assurance to you of the uniform quality and performance of every coil of Anaconda Copper Refrigeration Tubes.



Cup Seal[®] is protection against moisture.

*Patent Applied For

BUY WAR BONDS . . . buy more than before



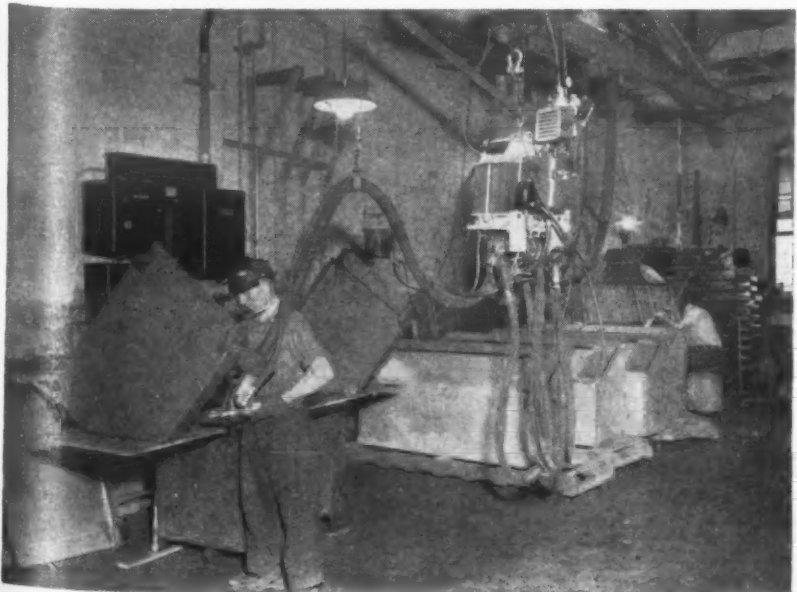
Anaconda Copper Tubes

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Producing an All-Steel Welded Cabinet



All-steel welded cabinet construction now employed by Fogel for cases built on Government contract will continue to be used when the company returns to peacetime production.

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Sold thru refrigeration and insulation distributors. Write for particulars.

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In the West it's REFRIGERATION SERVICE INC. Pacific Coast Supply Jobber since 1928

Your letterhead will bring our latest
catalog—also our House Organ,
"The Liquid Line"



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Forester to Head Sales For Arnold Wholesale

CLEVELAND—Eddie W. Forester has been named sales manager of the Arnold Wholesale Corp. here, a branch of the Tracy-Wells Co., distributorship of Columbus, Ohio, announces R. C. Hager, vice president and general manager.

Mr. Forester joined the Arnold firm in 1934 as territorial sales manager, following previous sales experience. He served with the Procurement of Defense Products in Cleveland, from February, 1942 to October, 1943, when he returned to the Arnold company.

Buffalo Forge Nets \$103,545

BUFFALO—Buffalo Forge Co. and subsidiaries reported net income for the quarter ended May 31 of \$103,545, equal to approximately 31 cents a share compared with \$320,303, or 98 cents a share, in the corresponding quarter last year.

Servicing the G-E Refrigerator Line

Replacement Procedure

Shaft Seal Replacement

Regardless of the original type of shaft seal, the removable seat assembly should be used as a replacement. The installation of this assembly with special tools eliminates the lapping of a shaft shoulder.

CM-32, 33, 34, AND 35 OPEN-TYPE MACHINES

1. Pump down compressor according to steps 1 and 2.
2. Close both service valves by front-seating.
3. Remove compressor from base by taking out mounting screws, tilting toward motor, and slipping off belt. Do not disconnect service valves.
4. Remove compressor pulley with wheel puller.
5. Remove shaft seal assembly and clean seal cavity.
6. Moisten shaft extension with clean refrigerating machine oil.
7. Dip Duprene washer in clean refrigerating machine oil and insert in recess of removable shoulder.
8. Insert removable shoulder with Duprene washer into assembly tool.
9. Press shoulder into place.

10. Dip nose piece of seal in clean refrigerating oil.
11. Assemble replacement bellows assembly with a new seal gasket.
12. Assemble replacement clamping plate.
13. Reassemble pulley, belt, and mount compressor.
14. Wait one-half hour for Duprene washer to expand.
15. Bleed air from shaft seal cavity and compressor.

Open suction service valve by back-seating. Bleed by slowly opening gauge connection on discharge service valve when odor of refrigerant is noticed. Turn compressor by hand to help this bleeding. Tighten gauge connection.

16. Open both service valves by back-seating.
17. Observe machine operation.

Machine may require running for several hours before operating normally. If, after some time, frost level on evaporator is low, add refrigerant.

CB, CD, CM-1, AND CM-2 OPEN-TYPE MACHINES

Although it can be done in the home, replacing a shaft seal on these machines is essentially a shop procedure. Remove machine from cabinet and return to shop. Refer to detailed manuals for instructions.

How G-E Shaft Seal Is Replaced

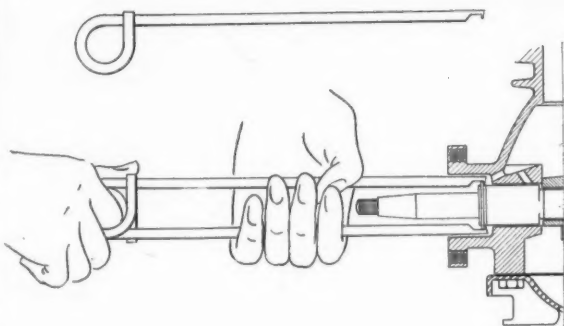


Fig. 54—Removal tool for removable shaft seal.

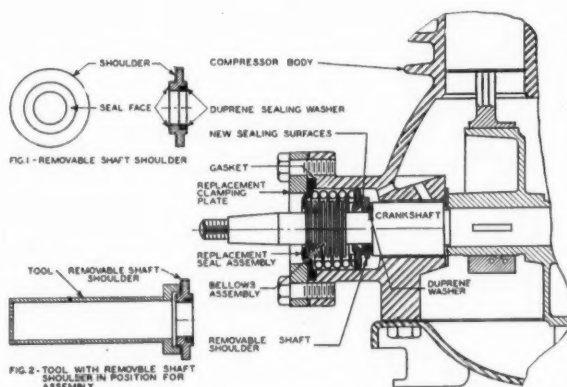


Fig. 55—Installation of removable shaft seal.

WPB Eases Restrictions On Wholesale Radio Distributors' Stocks

WASHINGTON, D. C.—Lifting of important restrictions governing wholesale radio distributors was announced recently by Ray C. Ellis, director of the Radio and Radar Division of WPB.

As a result of a revision of the radio and radar section of Priorities Regulation 13, WPB said, wholesale radio distributors will be in a position to offer substantial aid to the war effort.

The relaxed order establishes a rating floor of AA-5 or better for all

wholesale distributors, who may now obtain stocks to meet the emergency requirements of prime contractors from idle and excess component stocks that are on hand in other contractor plants.

Prior to the revision of PR-13, wholesale radio distributors were not permitted to purchase electronic parts of equipment without special sales authorization from WPB.

WPB officials explained that the revision is not intended to permit stockpiling by wholesale distributors, but is primarily intended to implement the movement of idle and excess stocks, and also to allow wholesale radio jobbers to fill rated orders for electronic parts.

Another important revision in the order includes the free sale of rejected components to wholesale radio distributors without priorities. Under the order, distributors may purchase rejected components direct from the prime contractor's idle and excess stocks without coming to headquarters for approval. The order reads as follows:

"Rejected components are not restricted except new and used test equipment. The term 'rejected,' applies to components that have no military value and must be so certified as such, in writing, by Army or Navy inspectors, and records maintained in accordance with paragraph (G) of this Order."

20 Cent Philco Dividend

PHILADELPHIA—Board of Directors of Philco Corp. has declared a dividend of 20 cents per share of common stock payable Sept. 12, 1944, to stockholders of record Aug. 26.

General Controls Wins Army-Navy 'E' Award

GLENDAL, Calif.—General Controls Corp. was recently awarded the Army-Navy "E" for excellence in producing automatic controls for aircraft and ordnance.

Major Justin C. Gunnison, AAF, 12th Air Force, who has made 80 bombing missions in the Mediterranean theater, was chief speaker and presented the award to W. A. Ray, president and chief engineer of the company.

Lieut. Malcolm B. Hoyt, USN, presented the pins, which were accepted for the workers by John Peterson, disabled World War II veteran now operating a drill press for General Controls, and Henry Latter and Carol Wilson, oldest employees.

Major Howard H. Adams, District Public Relations Officer, AAF, Materiel Command, was master of ceremonies.

Kelvinator Promotes Conlin In Pittsburgh

PITTSBURGH—L. R. Conlin has been named assistant zone manager in the Pittsburgh division of Nash-Kelvinator Corp. He has had 11 years' experience in the retail and wholesale appliance field, including various positions with Kelvinator in both Pittsburgh and Detroit.

MARSH

Gauges . . . Dial Thermometers
Recorders . . . Valve Specialties.

JAS. P. MARSH CORPORATION
2067 Southport Ave., Chicago, Ill.

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS

BUNDY TUBING CO., DETROIT

La Crosse Beer Dispensing
Equipment with a
National reputation for
Quality and Performance.
La Crosse Novelty Box Mfg. Co.
LA CROSSE, WISCONSIN

HEAT TRANSFER EQUIPMENT

MARLO
COIL COMPANY
SAINT LOUIS, MISSOURI

MIDWEST

Household and Commercial
Refrigerator Cabinets
Now Making
VITAL War Products
for Army and Navy
MIDWEST MFG. COMPANY

Use **CHICAGO SEALS**
for seal replacements
A complete line in all sizes

CHICAGO SEAL CO.
20 North Wacker Dr., Chicago

RECORD CHILLS
WATER-DEFROST
REFRIGERATION ENGINEERING INC.
LOS ANGELES - CALIFORNIA

For: TRUCKS, LOCKERS, COOLERS, COUNTERS
AND CABINET CONVERSIONS, ETC.

KOLD-HOLD
PLATES

KOLD-HOLD MFG. CO.
LANSING, MICH., U.S.A.

STANGARD PRIME SURFACE Cold Plates

FOR MAXIMUM EFFICIENT REFRIGERATION

★ For Locker Plants, Sharp Freezing,
Ice Cream Cabinets, Hardening Rooms,
Soda Fountains, Storage Rooms, Milk
Coolers, Liquid Cooling, Food Counters and other similar uses.
Write us today for complete information and catalog.

Stangard Facilities are contributing to the production of
materials for our National Defense.

THE STANGARD-DICKERSON CORP.
46-76 Oliver Street, Newark, N. J.



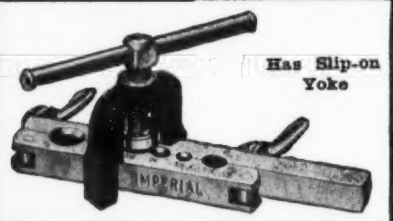
★ Most commercial refrigeration men west of Omaha know this fellow. He is ED. WARD, former Pacific Representative for Tyler and currently serving the company as Assistant to President in War Production. When the present job is done, he'll be seeing you with a post-war story on profit possibilities with Tyler that will ring the bell!

TYLER REFRIGERATORS

IMPERIAL Flaring Tools

- built to conserve precious minutes
- designed to do a job that's right the first time

Imperial Flaring Tools are especially valuable under current conditions. They help speed up tubing connection work and they make joints that are tight and stay tight.
IMPERIAL BRASS MFG. CO., 565 S. Racine Ave., Chicago 7, Ill.



No. 195-F Flaring Tool. Flares 1/4", 5/16", 3/8", 1/2" and 5/8". O.D. soft copper, brass or aluminum tubing. Yoke is made so that it can be slipped over bar instantly without twisting or turning.
Order Imperial tools from your Jobber

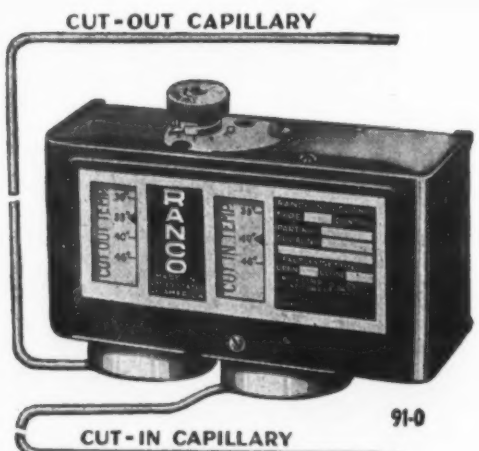
Henry ABSO-DRY—PRESSURE SEALED DRYER

Most efficient due to the exclusive Henry vacuum drying and pressure sealing process. Escape of dehydrated air when seal cap is removed proves unit is absolutely dry! Soldered brass shell with dispersion tube and dehydrant compression spring. Choice of Silica Gel or Activated Alumina.

Write for Catalog

ASK YOUR JOBBER ABOUT IT

Henry Valve Company
1400 E. W. SPALDING AVE., CHICAGO



EXCLUSIVE INTERLOCKING TWO-TEMPERATURE CONTROL RANCO TYPE 91-0

- ★ For BETTER preservation of perishables.
- ★ IDEAL for Walk-in coolers, display cases, florists boxes, etc.
- ★ For either natural convection or forced convection units; single unit or multiple unit systems.

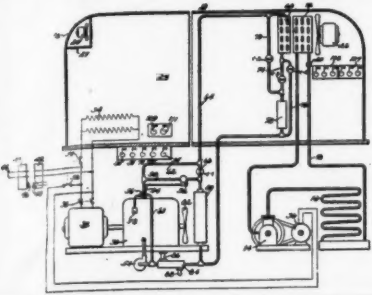
This is the control that assures uniform fixture temperatures, uniform high relative humidity and completely automatic defrosting of the coil regardless of weather or load conditions or a cold location of the compressor. Ask your jobber about this unusual control and about other Ranco Commercial and Domestic Controls.

Ranco Inc. COLUMBUS 1, OHIO

PATENTS

Weeks of Aug. 8 & 15

2,355,040. REFRIGERATING APPARATUS. Donald F. Alexander, Oakwood and James R. Hornaday and Albert J. Kuhn.



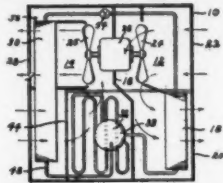
Dayton, Ohio, assignors to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application July 30, 1943, Serial No. 404,666. 6 Claims. (Cl. 257-3.)

1. In combination with an enclosure, an internal combustion engine, a generator driven by said engine, electric heaters within said enclosure adapted to be supplied with electrical energy from said generator, means for supplying waste heat from said engine to said enclosure including means for supplying a portion of said waste heat into the upper portion of said enclosure and another portion of said heat to the lower portion of said enclosure, means responsive to the temperature within said enclosure controlling the heat supplied to the upper portion of said enclosure, thermostat means controlling the supply of waste heat to the lower portion of said enclosure, and temperature responsive means preventing energization of said electrical heaters when the temperatures in the enclosure are such that one or the other of said waste heat supplying means is inoperative to supply waste heat to said enclosure.

2,355,289. REFRIGERATING APPARATUS. J. Lowell Gibson, Dayton, Ohio, as-

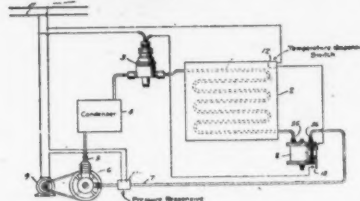
signor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application June 30, 1943, Serial No. 492,849. 6 Claims. (Cl. 62-140.)

1. In a self contained air conditioning unit, a casing, partition means within said casing separating said casing into an evaporator compartment and a condenser compartment, an evaporator within said evaporator compartment, a condenser within said condenser compartment, means for flowing a first stream of air in thermal exchange with said evaporator, means for flowing a second stream of air in thermal exchange with said condenser, means for collecting the condensate separated from the air by said evaporator, a heat exchange coil arranged in thermal exchange relationship with said condensate, a compressor, a casing for said compressor, means for conveying refrigerant vaporized in said evaporator to the inlet of said compressor, means for conveying the compressed refrigerant leaving said compressor into said heat exchange coil, means for conveying the refrigerant leaving said heat exchange coil into said compressor casing, means for conveying the refrigerant leaving said casing to said condenser, and means for conveying refrigerant from said condenser to said evaporator, said last named means including a pressure regulating means.



part being connected to receive steam from said boiler.

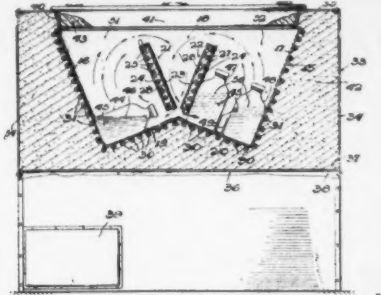
2,355,894. REFRIGERATING SYSTEM. William A. Ray, Glendale, Calif. Application Sept. 4, 1942, Serial No. 457,302. 3 Claims. (Cl. 62-8.)



3. In a refrigerator system for cooling a space, utilizing the vaporization of a liquid refrigerant in a vaporizer, the combination therewith of an electromagnetically operated valve for admitting refrigerant into the vaporizer, said valve having a closure member operating only between fully open and fully closed positions, and controlling a valve port, a circuit controlling the operation of said valve, and means separate from said port, defining a throttling orifice in the outlet side of the valve.

2,356,068. REFRIGERATION. Samuel Arne Larson, New York, N. Y., assignor to Plas-Matic, Inc., New York, N. Y., a corporation of New York. Application July 27, 1942, Serial No. 452,498. 12 Claims. (Cl. 62-114.)

1. The method of refrigerating a container enclosing a vapor space and contents comprising fluent matter which ex-



pands on freezing, said method comprising supporting said container in an inclined position such as the area of the free surface of the fluent matter out of contact with the inner wall surface of the container is sufficiently increased to preclude bursting of the container upon freezing of the contents thereof, and removing heat from the container contents by conduction of said heat through at least two wall surfaces of the container to a refrigerant circulating in heat exchange therewith and capable of producing a temperature at least as low as the freezing point of said contents.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$2.50 per insertion. Limit 50 words.
RATES for all other classifications \$5.00 per insertion. Limit 50 words.
Advertisements set in usual classified style. Box addresses count as five words, other addresses by actual word count.
PAYMENT in advance is required for advertising in this column.

EQUIPMENT WANTED

USED EQUIPMENT WANTED: Air conditioning and refrigeration systems and machinery including self-contained units, coils, high-sides, shell and tube coolers and controls. Highest cash for large sizes. We urgently need two 15 HP motors and two compressors without condensers. E. M. FAIRBANKS CO., 475 Fifth Ave., New York 17, N. Y.

WE NEED 1/2, 1/4, 1/8, and 1 H.P., 25 cycle motors, suitable for refrigeration service, single phase, 110 or 220 volts. HALLE ELECTRIC COMPANY, Colorado Springs, Colorado.

ELECTRIC WATER COOLERS

ALL SIZES FOR
NAVY AND LAND USE
MEET GOVT. SPECS.
QUICK SHIPMENT
Exclusive Dealer Franchise
MFD. BY

THE REVELATION CO.
L. E. RABJOHN
1801 San Fernando Rd. Los Angeles 41, Calif.

WANTED IMMEDIATELY

Experienced air conditioning and industrial refrigeration service engineer with engineering education, capable of analyzing and supervising. Permanent position. Write the Supervisor, Technical Employment, Union Bank Building, Pittsburgh 22, Pennsylvania.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO.

UNLIMITED OPPORTUNITY FOR DISTRICT REPRESENTATIVES

There is no ceiling on this opportunity for several District Representatives, to be added immediately to the field organization of Combustioneer, leading and pioneer maker of automatic coal stokers for homes, commercial buildings, apartments and factories. Combustioneer's consistent record of saving money and labor and preventing fuel wastage—plus wartime publicity on fuel conservation to sales which have steadily accelerated over the past 10 years. So if you have the ability to franchise and work with distributors and dealers, this is an unlimited opportunity to cash in on great immediate and continuing sales. Protected territory, salary and commission. Write, giving details which will warrant a prompt interview, to Sales Manager, Combustioneer, Springfield, Ohio.

POSITIONS WANTED

EXPERIENCED man commercial refrigeration, air conditioning with following abilities: application engineering, promotional and merchandising, executive and personnel experience, ambition, business experience, handling of distributors and all types of manpower, credit experience, sales volume production; interested in position with manufacturer or distributor. Best references. Must offer future. Box 1600, Air Conditioning & Refrigeration News.

AVAILABLE, man with extensive background in Home Frozen Food Unit Engineering, design and development, plus market analyses. Also is Experienced Sales Executive. Capable of handling entire operation. Box 1611, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

FOR SALE: Milk Coolers, Bottle Coolers, converted Freezers, 1,000 complete High-Sides Frigidaires, Kelvinator 1/4 H.P. to 2 H.P. Motors up to 5 H.P. send for list and price. EDISON COOLING CORPORATION, 310 E. 149th St., New York, N.Y., 100.

AMMONIA COMPRESSOR 6 x 6 with 15 H.P., 220 V., 3 ph., motor, ammonia receiver, direct expansion coil, control equipment, and valves. O. T. WOOD, 395 High Street, Clinton, Mass.

NEW AND used-reconditioned Temprite beer coolers. 2 and 3 tap. \$50 and \$25 respectively. New Russ Basement draw 2 tap beer cooler. \$125 all F.O.B. Missoula, Montana. MISSOULA REFRIGERATION CO.

BEER COOLERS, direct draw for 2 half barrels. Brand new. \$325.00, F.O.B. Philadelphia, Pa. Milk coolers, 4 and 6 can capacity. Self contained with General Electric condensing units. 68 cubic foot. Hussman Porcelain reachin. Call Rittenhouse 6859 or write JORDON REFRIGERATOR COMPANY, 235-237 North Broad St., Philadelphia 7, Pa.

OFFERING QUANTITY of used Frigidaires Model K 1/4 hp. condensing units. All units checked and in running condition, no motors, \$18.00. Also quantity of brand new 1/4 hp., 1/2 hp. condensing units, 60 cycle, 110 volts, single phase in original crates. MANN, 595 Sixth Ave., New York City.

SPOT WELDER TIP COOLERS. Manufacturer has small lot of self-contained spot welder tip coolers complete with 3 hp. water cooled "Freon" condensing unit, shell and tube evaporator, brine circulating pump, high pressure tip circulating pump, and controls for immediate delivery. Address Box 1609, Air Conditioning & Refrigeration News.

FRANCHISES WANTED

LEADING JOBBERS South Africa, established connection, want to contact manufacturers and/or representatives all types refrigeration and air conditioning accessories including Fractional Horse Power Electric Motors and components with view to representing them and marketing their products Southern Africa. Box 1599, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

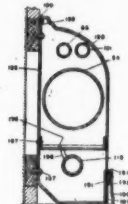
UNUSUAL OPPORTUNITY for refrigeration draftsmen and engineers. Large, firmly established manufacturing company at Chicago, Illinois. Please outline your education and experience to us in your first letter; also, salary expected. Those engaged in defense work cannot be considered. Box 1606, Air Conditioning & Refrigeration News.

WANTED a man to take charge of service department of six employees. Complete knowledge of refrigeration not absolutely essential but knowledge of control of men is required. HAROLD REFRIGERATION SALES, 201-205 North Jackson, Jackson, Mich.

ENGINEER WANTED: Large Ohio school teaching refrigeration and air conditioning by correspondence supplemented by shop training desires man with suitable engineering degree, who can teach resident students, supervise correspondence instruction and assume full charge of laboratory. Please give details of education and experience. Box 1610, Air Conditioning & Refrigeration News.

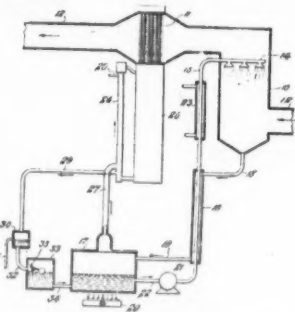
LABORATORY PROJECT engineers with experience in research or development work able to handle all testing of a product or specialized project. Nationally known refrigerator manufacturer with excellent present and postwar opportunities. State qualifications and experience. Box 1603, Air Conditioning & Refrigeration News.

2,355,629. AIR CONDITIONING SYSTEM. Willis H. Carrier, Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y., a corporation of Delaware. Original application Aug. 12, 1939, Serial No. 289,749. Divided and this application July 7, 1942, Serial No. 450,057. 3 Claims. (Cl. 257-133.)



1. A baseboard structure for housing air conditioning units located remotely from a riser housing such lines, comprising a first element in the form of a bracket having an upright leg arranged to be attached to a wall, the top extremity of said leg being belled and a horizontal leg arranged to rest upon the floor, the horizontal leg having an upwardly extending flange, a second element resting upon the floor and secured to said flange, said second element being belled at its upper extremity to form a pocket between the belled portion and the upper extremity of the flange, a third element having one extremity resting upon the floor and another extremity fitting within said pocket, and a cover plate, said cover plate having an upper edge adapted to be slid into the space between the belled portion of said upright leg and the wall to which the upright leg is attached, the lower edge of the cover plate being adapted to be slid into said pocket.

2,355,828. COMBINED COOLING AND DEHUMIDIFYING SYSTEM. Robert S. Taylor, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Feb. 25, 1943, Serial No. 477,024. 6 Claims. (Cl. 62-129.)



1. In an air conditioning system comprising a duct through which air is circulated, means for dehumidifying air flowing in the duct including a circuit containing a liquid absorbent for absorbing water vapor, means to circulate the absorbent in said circuit, said circuit including one part associated with said duct in which the absorbent absorbs water vapor from the air and a boiler in which water vapor is expelled from the absorbent in the form of steam, refrigeration apparatus including a cooling element arranged to effect cooling of air in the duct, and a heat receiving part, said heat receiving



Keep 'em Running with
REFRIGERATION PARTS and SUPPLIES
from Headquarters

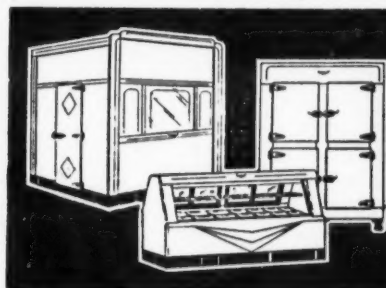
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THE HARRY ALTER CO.

1728 S. Michigan Ave.
Chicago, 16, Ill.

Two Big Warehouses
to Serve You

134 Lafayette St.
New York, 13, N.Y.



READY TO GO!

OUR POST-WAR PLANS
SPELL OPPORTUNITY FOR YOU.
DON'T DELAY --- CONTACT US NOW

REACH-INS, WALK-INS, AND
OTHER ITEMS NOW AVAILABLE

INQUIRE ABOUT OUR PROPOSITION TO
DISTRIBUTORS and FACTORY REPRESENTATIVES

FOGEL REFRIGERATOR COMPANY, Since 1899
5400 Eadom St., Philadelphia 37, Pa.

REFRIGERATION PRODUCTS

Humi-Temp Forced Convection Units—Patented CROSS-FIN-COILS—Bare Tube Coils—Zinc Fused Steel Plate Coils—Disseminator Pans—Heat Exchangers—Evaporative Condensers—Instantaneous Water Coolers—Air Conditioning Coils—Industrial Units.

Write for New Catalogue

LARKIN COILS, INC.
519 Memorial Dr., S. E.
ATLANTA, GA.



ZEROVAULT
Model 129-Z

WILSON ZEROVAULT STORAGE FOR FROZEN FOODS

- ZEROVAULT has a significant place in our post-war stepped-up production schedule of low-temperature equipment.
- Sectional in construction, ZEROVAULT is easily erected in otherwise inaccessible places . . . is easily enlarged to care for expansion of frozen food distribution facilities.

WILSON CABINET CO. SMYRNA DELAWARE

Locker Plant Convention Sessions Sept. 25-27 Will Probe Future Course of the Industry

(Concluded from Page 1, Column 2)

All available exhibit space was taken up some time ago by the 55 firms who will have exhibits at the convention.

National Frozen Food Locker Association now counts 1,600 members who operate plants in 40 states.

Following is the program for the convention:

MONDAY, SEPT. 25

9:30 a.m.

President's Message.
Speaker on "Food in War and Writing the Peace."
Committee Reports and Announcements.

12:00 noon

Luncheon Meetings, State Presidents and State Secretaries.

1:30 p.m.

"Looking at the Post War Period."
"The Locker Plant of Tomorrow and Its Possibilities."

"If you Plan to Build or Expand Your Locker Plant."

- a) Need for better construction.
- b) Need for modernization.
- c) Complete Service plant.
- d) Open forum.

The manufacturers and Suppliers will conduct the entire session on the above subject.

7:30 p.m.

Outstanding speaker of national calibre.

Play "Typical Day in a Typical Locker Plant."

Questions and Answers.

This session in charge of Manufacturers and Suppliers.

TUESDAY, SEPT. 26

7:30 to 9:45 a.m.

Breakfast Meetings—
Topics: Curing and Smoking; Slaughtering and By-products; Locker Plant Problems and New Equipment; Departmental Costs and Profits.

10:00 a.m.

Motion Picture on Curing and Smoking.

Talk and Demonstration on killing and preparing poultry for freezing.

"Selecting and Preparing Fruits and Vegetables."

12:00 noon

General Luncheon Meeting.

2:30 p.m.

Meat Cutting and Boning—talk and demonstration.
Wrapping and Packaging—talk and demonstration.

"Why a State Association and a National Association."

6:30 p.m.

Annual Meeting Banquet and Entertainment.

Outstanding speaker on important national topic.

Dancing, entertainment, orchestra.

WEDNESDAY, SEPT. 27

7:30 to 9:45 a.m.

Breakfast Meetings—topics to be announced.

10:00 a.m.

"Home Storage and Zero Units and How They Can Be An Asset to the Locker Plant Industry."

"The Locker Plant Operator as a Merchandiser."

Committee Reports.

The Program of Activities for 1945.

12:00 noon

Luncheon Meeting of new Officers, Directors, State Presidents and Secretaries.

2:00 p.m.

General Meeting for discussion of problems confronting the industry and the program for 1945.

Exhibitors include the following:

All-American Meat & Bone Cutter Co., All-Steel Equip. Co., Amana Society, Angier Sales Corp., Armstrong Cork Co., Baker Ice Machine Co., Benj. C. Betner Co., The Biro Mfg. Co., Carrier Corp., Chase Industrial Refrig. Equip. & Engr. Co., W. B. Connor Engineering Corp., Container Corp. of America, Dairy Industries, Inc.

Dole Refrigerating Co., E. I. du Pont de Nemours & Co., Food Locker Construction Corp., Food Packaging, Frigidaire, General Motors Corp., Frosty Foods Equipment, General Electric Co., The Griffith Laboratories, Kalamazoo Vegetable Parchment Co., Paul L. Karstrom Co., Knickerbocker Stamping Co., Lily-Tulip Cup Corp., Lindley Box & Paper Co., Locker Publications Co., A. E. MacAdam & Co., Inc.

Master Mfg. Co., Meat Merchandising, The Menasha Products Co., Midwest Metal Stamping Co., C. F. Mohr Associates, Morton Salt Co., Motor Products Corp., Deepfreeze

Division, Mundet Cork Corp., National Gypsum Co., Owens-Corning Fiberglas Corp., The Pacific Lumber Co., Pasteuray Co., Pittsburgh-Erie Saw Corp., Quick Frozen Foods, Refrigeration Service Shop, Inc.

Safe-Way Food Locker Co., The C. Schmidt Co., Sperti, Inc., The Stangard-Dickerson Corp., E. W. Twitchell, Inc., Universal Cooler Corp., Vaughan Co., Western Fixture & Equipment Co., Wood Conversion Co., York Corp.

Idle and Excess Stocks of Controlled Materials Can Be Sold To Those Who Get 'Spot Authorization'

WASHINGTON, D. C.—Holders of idle and excess stocks of controlled materials are permitted to make special sales to persons who have been authorized to produce civilian goods under the "spot authorization" procedure, WPB said Sept. 2. This was done by issuing Direction No. 1 to Priorities Regulation No. 13.

Special sales are those made by a person who holds idle or excess materials in a form in which he does not, as a general rule, sell them.

Persons authorized to produce

civilian goods under the "spot authorization" procedure will be granted the right to use an allotment symbol, the initial letter of which will be "Z." Persons holding idle and excess stocks of controlled materials will be able to sell them to persons having such an allotment symbol.

The buyer need not charge controlled materials bought under the new rules against any Controlled Materials Plan allotment account.

Holders may also make special sales of non-controlled materials or

products that may be sold to users on a rating of AA-5 if the buyer furnishes an order with a CMP allotment symbol bearing the initial letter "Z" granted him under PR 25, the "spot authorization" order.

However, a production schedule authorized under PR 25 does not permit any person holding it to acquire materials or products that may not be purchased from idle and excess stocks without an AA-5 preference rating or without special WPB permission.



VISION . . .

Distance discounted . . . time transcended . . . disease defeated . . . undreamed comfort and convenience . . . a better, fuller, **MORE PROFITABLE** life. That, in essence, is the shape of things to come.

There's nothing blue in tomorrow's blueprints . . . for you. Home cooling . . . industrial and commercial cooling . . . both tremendous fields . . . both barely tapped. A conservative authority

estimates that less than 10% of the quick market for one-third to five ton self-contained air conditioners has been sold. Stores, restaurants, office buildings will be compelled by competition to air-condition. The steel industry, in competition with plastics and light metals, will be similarly pushed toward the economy and efficiency of conditioned air.

Beverage cooling . . . ice cream cabinets . . . industrial process-

ing . . . all open great vistas of profit to men of vision. Yet these . . . and other applications of refrigeration . . . are but atoms of interest in the tremendous total of this great industry which is scheduled to remake the living standards of the world.

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